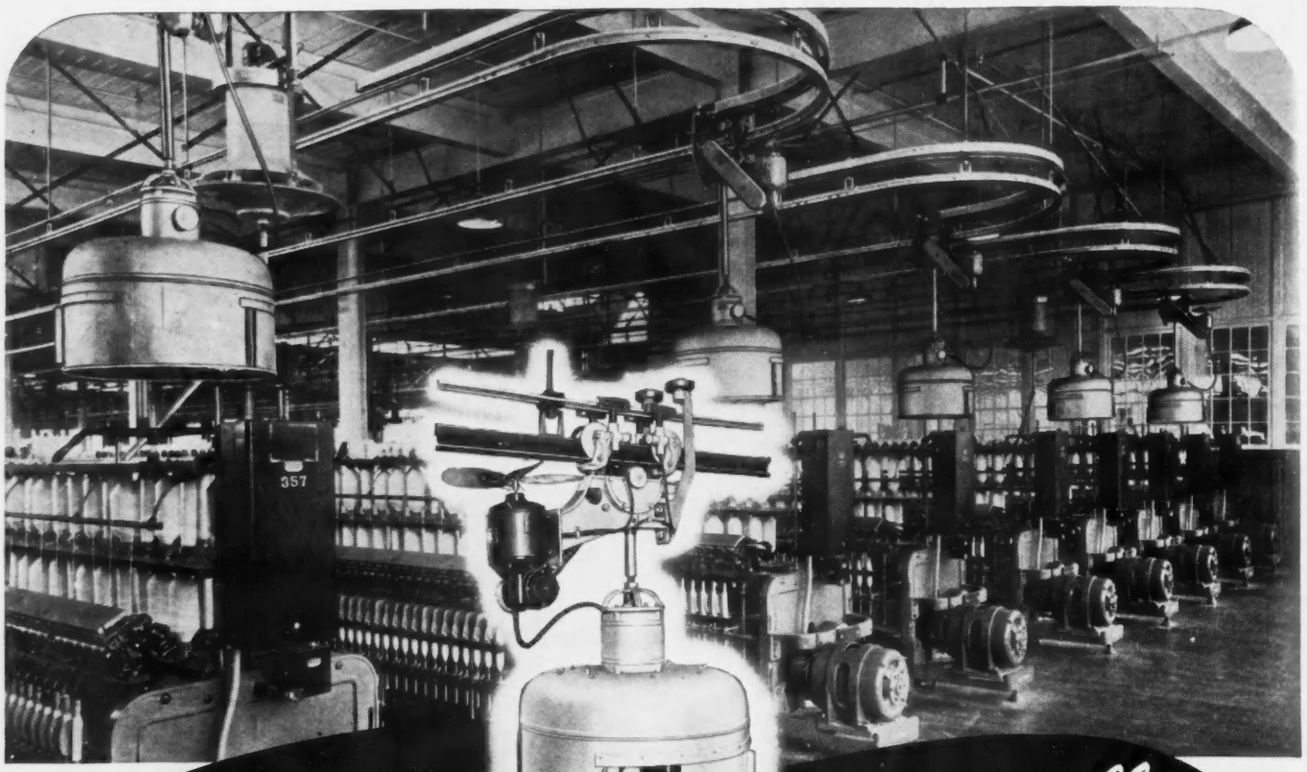
Textile World

AUGUST, 1941

TEXTILES TAKE TO THE AIR SEE PAGE 44

A STORY FROM WRIGHT FIELD



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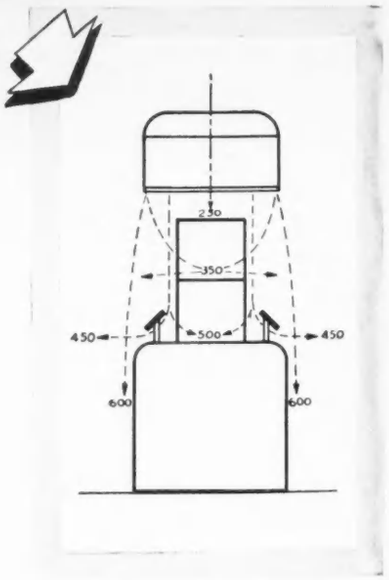

Indicates average values of air currents in feet per minute. Correct velocity where needed most . . . note that the highest velocities circulate around the bottom creel board and the roll stands.

THE AMERICAN MONORAIL CO.
13108 ATHENS AVENUE **CLEVELAND, OHIO**

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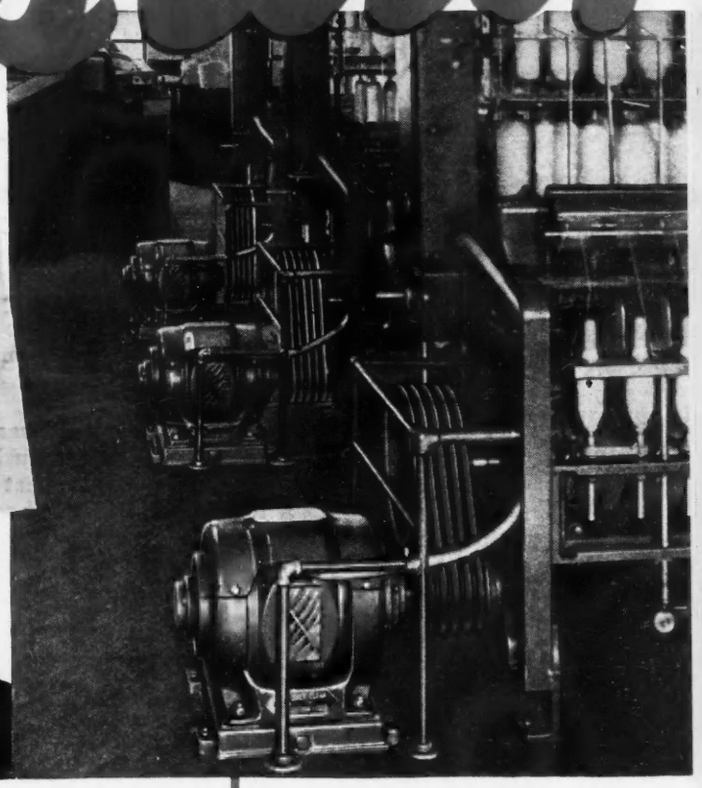

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ADVERTISING PAGES REMOVED

30,000 New Machines

Comments by Henry G. Lord

It was in November 1901, nearly forty years ago, that TEXTILE WORLD inaugurated the department of "New Machinery and Processes Coming on the Market." During these 40 years it has published more than 30,000 descriptions of new textile equipment, dyestuffs, chemicals and various processes.

I am under the impression that this was the first regular feature of its kind in any business publication, although it is possible that the *American Machinist* may have been doing something of the same sort in a slightly different way and *Scientific American* was publishing news of inventions not necessarily ready for the market.

Many trade papers published write-ups, "puffs" and almost anything that an advertiser wanted as a consideration for advertising, but none, that I recall, featured new machinery purely from the news angle and of interest to the reader, wholly regardless of advertising consideration.

We have come a long way since then and the business paper has made a place for itself which it did not have 40 or 50 years ago.

I remember a typical case which often confronted a publisher in those days. An advertiser sent in a write-up of a machine that had been on the market a number of years and wanted us to publish an article about it which was principally a denunciation of competitors and wild claims of the superiority of the machine over all others. The editor showed it to me and asked what to do about it. I told him to return it with an explanation that we could not publish it as it had no news value; that it was not a new machine and, even if it had news value, we would not permit derogatory references to competitors. Two days after the advertiser called at the office with fire in his eyes and demanded that the article should be published just as it was, without any change, or else he would discontinue his advertising. I told him that it was wholly within his privilege to discontinue his advertising if he thought it bought him the right to publish what he desired in the editorial pages, but assured him that whenever he had anything of machinery *news* value for the industry, we would be only too glad to print it, regardless of whether he advertised or not. He stopped the ad. (Six months later it was back again.)

Similar incidents led me to establish the department of "New Machinery and Processes" with clearly defined specifications. It has been continued ever since and now has the title of "Textile Equipment News" and also includes news of dyestuffs, chemicals and auxiliary equipment.

I believe that the news of textile machinery and process development is of vital interest to textile mill men. Whenever we have undertaken mail or field surveys, as we do from time to time to find out what features in TEXTILE WORLD are most generally read, textile equipment news always ranks near the top. The editors welcome any and all equipment news and give it a most prominent place in the paper. They edit it with the greatest care and it is published entirely regardless of advertising consideration.

Each year a Digest of all the new equipment and process items that have appeared in the Equipment Section is published in the Textile World Year Book as a convenient record for reference.

TEXTILE WORLD'S "New Machinery and Processes" and "Textile Equipment News" Departments, during the last 40 years, have given a complete history of the mechanical and processing development of the textile industry during this long period. It is the only such record in existence.

HENRY G. LORD, *founder of Textile World and president, Bragdon, Lord & Nagle Division, McGraw-Hill Publishing Co.*

CONTENTS

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Management

How a Textile Man Can Help Win the War (Editorial) 39
The Editor Says 40
Japanese Tension Ties up Silk Situation 41
Price-Ceiling Jam by OPACS Draws Congress In 42
Textiles Take to the Air—Fabrics at Wright Field 44
Conserve and Substitute—Shortage of Metals and Chemicals . 46
Textile Activity for First Half of Year "Incredible" 51
Central Research Laboratory Serves Units of Mill Group . . . 63
QM's Forward Textile Needs Uncertain 100

Methods

Fabrics for National Defense—Shirting Percale, etc. 55
Rayon Warp-Sizing Improvement Shown by Research-Institute . 56
Shirt-Sleeve Management Increased Elk Mill Production by 13% 59
Less Waste in Worsted Spinning Means Better Profit Chance . . 60
Rayon in Full-Fashioned Hosiery 62
Remedies for Causes of Improper Combing 65
Cost Manual for Yarn Processing 66
Fixing Hosiery Machines—Full-Fashioned 69
Fixing Hosiery Machines—Circular 70
Eliminating Yarn Defects by Correcting Small Things 85
How to Overhaul Spinning Frames 86
Loomfixers' Manual—Cotton 88
Loomfixers' Manual—Wool 89
Staple Cotton Fabrics 90
Substitute Materials for Hosiery 104

Merchandising

Glass Textiles Enter New Stage; Seek Broader Fields 48
Consumers Ignore Wool Labels 102

Mill Engineering

Air Conditioning for Nylon by Phoenix Hosiery Co. 58
Eleven-Man Maintenance Crew at Continental Mills 68
Textile Equipment News 71

Men

Fatigue Costs You Money! Speed-Ups Sharpen Problem . . . 52
Should Overseers Work on Machinery (Pete & Bill) 83
What Causes Accidents 84

DEPARTMENTS

Textile Equipment News..... 71
News of the Month..... 92
New Publications..... 74
The Overseers' Corner..... 83
Questions and Answers..... 87
New Machinery and Processes..... 71
Textile Calendar..... 95
Leading Editorial..... 39
New Dyes and Chemicals..... 73
News of Suppliers..... 74
Free for the Asking..... 91
News About Men..... 106
Textile Mill News..... 118
Overseers' Practical Helps..... 84

FOR CONTENTS BY INDUSTRY BRANCHES, SEE NEXT PAGE

TEXTILE WORLD (formerly *Textile World Journal*) with which are combined *Textiles*, *Posselt's Textile Journal* and *Textile Advance News*. Published monthly. United States and Possessions and Latin American Republics, $1.50 a year; Canada and all other countries, $2, U. S. currency or 12 shillings. Single copy 25c. Annual index in "Textile World Yearbook & Catalog."

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IN THIS ISSUE

CONTENTS BY INDUSTRY BRANCHES

NATIONAL DEFENSE

How a Textile Man Can Help Win the War 39
Japanese Tension Ties Up Silk Situation 41
Price Ceiling Jam in OPACS Draws Congress In 42
Textiles Take to the Air—Fabrics at Wright Field 44
Shortage of Metals and Chemicals Analyzed 46
Fabrics for National Defense 55
Size of 1942 Army in Doubt 100

GENERAL

Glass Textiles Enter New Stage; Seek Broader Fields 48
Textile Activity for First Half of Year "Incredible" 51
Fatigue Costs You Money! Speed-ups Sharpen Problem 52
Eleven-Man Maintenance Crew at Continental 68
What Causes Accidents 84

COTTON

Textile Men Get Boost in Gray Goods Ceilings 42
Textiles Take to the Air 44
Shirting Percale and Wind-Resistant Coating for Army 55
Shirt Sleeve Management Boosts Elk Production 13% 59
Central Research Laboratory for United M. & M. Corp. 63
Preventing Improper Combing 65
Scavenger Roll 72
Eliminating Yarn Defects 85
How to Overhaul Spinning Frames 86
Reedy Cloth 87
Loomfixers' Manual—Cotton 88
Staple Cotton Fabrics 89

WOOL

Less Waste in Worsted Spinning, More Profit Chance for Mill 60
Improved Equalizer 71
Metallic Feeder Aprons 72
Bunch-Saving Attachment 73
Finishing Tweeds 87
Percent Yield and Waste 87
Worsted Yarn Costs 87
Loomfixers' Manual—Wool 89
Consumers Ignore Wool Labels 102

RAYON & SILK

Japanese Tension Ties Up Silk Situation 41
Rayon Warp-Sizing Research Offers Guidance 56
Air-Conditioning for Nylon Throwing 58
Rayon in Full-Fashioned Hosiery 62
Laboratory-Model Fiber Cutter 73
Metal Loom Reed 73
Warp Truck Obviates Lifting Heavy Beams 85

KNITTING

Air-Conditioning for Nylon at Phoenix 58
Rayon in Full-Fashioned Hosiery 62
Maintenance at Continental Mills 68
Fixing Hosiery Machines—Full-Fashioned 69
Fixing Hosiery Machines—Circular 70
Elastic Laying-in Development 71
Seamless Sleeve Transfer Machine 72
Substitute Materials for F.F. Hosiery 104

PROCESSING

Cost Manual for Yarn Processing 66
Scray for Shears 71
Photoelectric Control for Register 72
New Oven and Dryer Material 72
New Dyes and Chemicals 73
Finishing Tweeds 87

IN THE NEXT

FOR THE SEVENTEENTH CONSECUTIVE September, the "Annual Rayon Yearbook" appears as a section of TEXTILE WORLD. There are two jobs in the field of synthetics this year, and both will be covered—(1) The Short-Range Outlook and (2) The Long-Range Outlook.

In the first group will be taken up the major popular fabrics made of synthetics, including sheers, shantungs, tropical suitings, romaines, linen types, taffetas and crepes. Details on most efficient production and finishing methods will be given. In addition, three articles will do a similar job for knitters, covering knitted underwear, Nylon full-fashioned hosiery, and trends in half-hose.

Our long-range outlook articles will try to unravel the snarl of conflicting trends and events in the field of synthetics, and to see what may happen in the future. Will we be wearing "glass" pants?, "fish" coats?, "soy bean" socks? and "banana" slips?

In the regular portion of the September issue will be timely articles on such subjects as the Government's newly developed method of sampling and testing grease wool, modernization at Harriet and Henderson, relation of reeds to weaving efficiency, analysis of covered-rubber yarns, etc.

TEXTILE WORLD

DOUGLAS G. WOOLF, Editor

How a Textile Man Can Help Win the War

NOW, MORE THAN EVER BEFORE, it is essential to get back to a re-appraisal of men as the only real factor in making industry work, and in winning a war.

In industry, executives become absorbed in machines and finances. In military circles, generals become absorbed in tanks and airplanes and guns.

And yet, as the chapters of both industry and warfare are inscribed upon history, it becomes increasingly clear that machines and materials are lifeless without men.

Great Britain would be today another of the conquered nations of the world if it were not for her human resources. The heroes of Dunkirk and Greece and Crete; the unsung heroes of London and Manchester and Plymouth and Coventry—these and many millions more human beings have held the fort against the most efficient mechanized force the world has ever known.

And what will beat Hitler eventually is the men who fight because they follow a vision, against men who fight without any vision at all.

Since this is true, how important it is that we in this country, just now approaching our real test, should recognize and avail ourselves of our only real strength: man-power!

To do so, we cannot think of men in the abstract. We must, all of us, each in his comparatively limited field, think of men in that field.

SPECIFICALLY, textile manufacturers must spend most of their waking hours on the development of the men in their organizations.

This should start with the key-men. The superintendent, the assistant superintendent, the overseers, the second hands, the section hands, compose the front-line of a textile-manufacturing company. The technicians—engineers, chemists, physicists, designers, machinists—constitute what may be called the SOS of the company.

In the development of these key-men, a few basic principles should be observed:

1. If an operating executive, whether a superintendent or a second hand, is worthy of being an executive, he wants responsibility. He wants the feeling of running his own job. And he wants a realization, on the part of his superiors, of his ability to manage that job. If he isn't given that freedom, one of two things is probably true: (1) The management doesn't know enough about men to give him his rope; or (2) the management knows enough about this man to feel he shouldn't be given his rope. If the latter is true, the man should be replaced: if the former is true, the management needs a dose of salts.

2. Operating executives want and need to know enough about company policies, company finances, and company problems, to pass that knowledge along to their sub-executives and to the men and women at the machines. In this writer's opinion, "enough" in this case means everything. If there are any dark corners into which operating executives are not supposed to peek, then the dark corners should be cleaned out. . . . The best medium for the transmission of this knowledge is that of frequent, regular, and frank conferences between the management and the key-men. Not the pontifical type of conference, in which the chief executive makes a speech and expects an automatic evidence of approval, but a gloves-off, no-holds-barred, type of conference in which the executive says, in effect: "This is the low-down, fellows. If you don't like it, say so and why. Tell us what *you* think we ought to do."

3. The operating executive wants both security of position and assurance of adequate reward. We have actually heard manufacturers say: "We can get all the overseers we want at $35 per week." That type of chief thinks of operating executives as he would of so many bananas for a dime. Instead of which, he should think of John Jones and Tom Smith and Dick Brown as men who have proved their worth, and who therefore are worth holding and worth salary increases, even if another group could be hired more cheaply. This is elemental organization sense; that it is overlooked by many textile manufacturers is the only cause this writer has ever had to blush for his industry. The only excuse is that the fault is not usually a conscious one. It merely represents lack of thought on the most vital phase of textile management. Eventually, that lack becomes no longer excusable, but rather a stigma of bad management.

UNDER ORDINARY CIRCUMSTANCES, bad management is written off as an unfortunate corporate weakness. But under the pressure of the present national emergency—graver, we believe, than probably 90% of the citizens of the United States realize—bad management is a crime against the endurance of free enterprise, against the salvation of democracy, against the very safety—the physical safety—of this country as a place in which all of us, and our children, may continue to live as free individuals.

That is not over-stating the case. America will survive—if it does—not through lip-service to democracy, nor through merely the courage of its leaders, vital as that factor is. It will survive through the concentrated

and unselfish effort of each individual. England has survived, not merely because of the intrepid leadership of Winston Churchill, but because of the courage of every man who operates a machine in a defense factory and puts out fires in his spare time, and because of every woman who stands at her textile machine by day, and cheerfully herds her brood into a bomb-shelter by night.

The only way we can win this war is for each of us, in his or her own sphere, to translate the war into terms of what he or she can do.

The job of a textile manufacturer, in the emergency, is a particularly demanding one. Not only must he keep his company going as a successful enterprise, and as an efficient unit in national defense, but he must also—and in fact first—keep his organization going as a group of self-respecting, responsible, and adequately-paid individuals.

If there is any doubt in the minds of textile men as to the urgency of this task, we suggest that they read the steadily-mounting testimony of the blight which Hitlerism has placed upon the erstwhile-free nations of Europe.

We, as a country and as a people, are still free. We can continue free only so long as we have 130,000,000 people alive to the importance of being free. And the responsibility of any one man or group of men, in executive control of a textile company, to preserve that sense of individual liberty, is no less in its own sphere than is that of the President of the United States, in his.

Freedom doesn't happen. It is made, and preserved, by men. Your real job in defense, Mr. Textile Manufacturer, is with the men in your particular outfit. If you shirk that, you shirk your part in winning the war.

Douglas G. Woolf

THE EDITOR SAYS

Beat Hitler NOW

WE RECOGNIZE AN OPPORTUNITY which, if this country and Great Britain don't grasp it, will probably never come again. Hitler, expecting to chew up Russia within a few weeks, has found something indigestible. He *may* get to Moscow, but his troubles will not be over then.

Now is the time for England to smash everything on the Western Front and to start an offensive somewhere in the East. Now is the time for the United States to clear the Atlantic of the Nazi menace—not merely by convoys, but by offensive attack.

The time has passed when promises to keep this country out of war mean anything. It's like a boy who promised his mother never to hit anyone, and finds himself up against a thug. Should he remember his promise then?

There is just one threat in the world today: Adolf Hitler. He has almost wiped the map of the world clear of free nations. Those few which still survive—principally the United States and Great Britain—have no choice except to go and get Hitler. Get him before he gets us.

Those who hestitate may be sincere, but so were the Norwegians and Danes and Frenchmen, and dozens of others, sincere. But today they are craven.

Do these four things: (1) Use the United States Navy, not only as a convoy, but as an offensive force to regain control of the seas for Great Britain and ourselves. (2) Extend the service-period of all selectees for the "duration." (3) Empower the President to send United States troops anywhere in the world where it might be helpful to our national defense. (4) Discard all ideas that this war is none of our business. It *is* our business, when aggressor nations threaten everything we have held dear for nearly two centuries.

JAPAN, RAW SILK AND HOSIERY

The critical situation relating to Japan has stopped commerce in raw silk. OPM has commandeered supplies for military use. Hosiery mills have shut down or turned to synthetics. In adjacent column is editorial on these developments. Other covering stories in this issue are as follows:

Japanese Tension Ties Up Silk ..... **page 41**

Knitting Full-Fashioned Hosiery of Rayon..... **62**

Substitute Materials for Hosiery **104**

Japan and Milady

THE PLIGHT in which the hosiery industry finds itself today is sudden but not surprising. It has been apparent for many months that the situation in the Far East might blow up at any minute. Now that the moment has arrived, where do we go from here?

There are two problems involved: that of the short-range or emergency period, and that of the long-range future.

The first, or immediate, outlook is not too hot. No matter what is done in the way of releasing part of the silk supply for civilian use, or in the substitution of other fibers for the welt and top of the stocking or even for the body itself, the pressure for materials is so great at the moment that sharp curtailment of hosiery production has resulted and will increase.

In facing this outlook, we shed no crocodile tears for the women of America. The privations in store for all of our citizenry, as the defense bill mounts and calls for payment, will be so great that a minor matter like silk stockings will be lost in the shuffle. But we *do* shed real tears for the many thousands of hosiery workers who face unemployment, and for the hosiery manufacturers whose machines can serve no other purpose than the single one for which they were designed. Cushioning such an industry and its workers against personal bankruptcy is a job second only to that of meeting the needs of the defense program. The ingenuity of American technicians plus the cooperation of all Government agencies concerned, is essential toward assuring the maximum of operation of a non-defense industry. This is equally true in many other zones of American enterprise today. The slogan of the hosiery industry must be: Carry on!

For the long-range future, the answer must be found in synthetics. Eventually, fibers like Nylon will supply the bulk of the raw material for women's hosiery. Women are not going back to cotton, nor will the bare-leg idea exist beyond the emergency. The silken type of stocking is not a fad; it is a basic esthetic phase of modern living. But it will be supplied by chemists, instead of by silk-worms.

Toward that end, all those engaged in synthetic-fiber production—executives, technicians, and workers—must bend their energies.

Silk has been on the way out. The nationalistic aspirations of Japan have pushed it through the exit door. Enter, now, the man-made fibers which will make this country free of one of the few remaining materials for which it has depended upon other nations.

Japanese Tension Ties up Silk

Freezing order, and stoppage of processing, set trade after substitutes

By BLAINE STUBBLEFIELD

Washington

THE SHOWDOWN between the United States and other anti-Axis powers against Japan for rights and strategic position in the West Pacific brought an imminent stoppage of the 85% of our raw silk which comes from Nippon. With swiftness that caught the wily Mongolians flat-footed, near U. S. coasts with 40 ships, including one just nosing into San Francisco with a $2,500,000 silk cargo, President Roosevelt on July 25 ordered the freezing of Japanese assets in this country, which action was immediately followed by Britain and the Netherlands East Indies. At the request of General Chiang Kai-shek, the exchange of China also was immobilized.

Next day, July 26, E. R. Stettinius, Director of Priorities, froze all stocks of raw silk and limited processing of thrown silk to current rates.

On July 27 Leon Henderson, OPACS administrator, requested suspension of trading in silk futures on the Commodity Exchange, and at the same time he announced that he would impose a price ceiling on raw silk within a few days at the levels prevailing Monday, July 21. Prices had moved up about 20% on the previous Friday.

On July 29 representatives of the trade started a series of meetings with OPACS developing information on which raw silk ceiling would be based.

On August 3, Henderson slapped the ceiling on principal grades of raw silk and silk waste, with no provision for completion of existing contracts on the spot market or liquidation of open positions on the commodity exchange. Meanwhile, all processing of silk was stopped, with the intent that Army and Navy could buy all supplies on hand. Henderson followed up with an order that rayon producers set aside at once an amount equal to 10% of their total daily output to meet the silk shortage.

On Aug. 6 OPM announced a broad program to re-establish the silk industry, to maintain employment of silk workers, and to assure an adequate supply of hosiery and other articles formerly made of silk. A special commodity section on silk was established, headed by Lessing J. Rosenwald, retired chairman of Sears, Roebuck & Co.

No specific action was taken by the President on silk. He simply ordered that the Japanese cannot get the funds they have in this country. Under that order, if the Japanese send any money here to pay for goods, it will be immobilized, useless. If they send any goods here, cash paid for them will be frozen. But, this order is subject to exceptions. The President reserves the right to permit such trading as will not tend to feed the Japanese war machine. Now it's Japan's move. Conceivably trade, including silk, might resume. But it's improbable. An early break in relations, or worse, seemed more likely.

USES OF SILK IN DEFENSE caught everybody's attention first. But the Army and the Navy quickly squelched any concern on that score. The Navy, usually coy about giving away information even if everybody knows it already, came out with a press release headed "Navy Not Worried by Silk Shortage," which said that it had plenty of silk on hand "for current needs" and had been experimenting for three or four years on synthetics that are satisfactory, and even cheaper in quantity than silk. Navy uses 750,000 to 800,000 yards of silk annually for parachutes.

Army Air Force officials answered inquiries to the same effect. The airmen have fussy ideas, prefer silk chutes, but the command feels safe enough, could operate even with cotton.

For powder bags, used in the big guns of both Army and Navy, synthetic fibers are good enough, though silk is slightly better. It is said that the Services have collected vast stockpiles of silk reclaimed from cast-off stockings, available for making powder bags.

There was disagreement as to the amount of silk on hand, but a fairly acceptable figure was 53,000 bales in warehouses, plus 35,000 bales in mill stocks, as of July 1. At the rate of 5,000 bales a week, this would last 18 weeks.

What action might be taken concerning Nylon was still in the study stage at this writing. It was suggested that the entire production, which in June was 20% of total hosiery shipments by end of year, might be turned to defense through priority ratings to users holding defense contracts.

OPM and OPACS received letters from Emil Rieve, president of TWU, asking cooperation in shifting the workers to other than silk yarns.

New York

FOLLOWING A HECTIC WEEK after the "freezing" of Japanese funds and so in effect cutting off further new supplies of raw silk from that source, OPM, through E. R. Stettinius, Jr., ordered stoppage of all processing of raw silk after midnight Aug. 2, unless specifically authorized by the director of priorities. The purpose is of course to conserve for military use the silk stocks now in this country. It was understood that hosiery mills might continue to use already thrown silk now in their hands. However a good proportion of the mills closed down to take account of the situation. They will doubtless make such thrown silk stocks as they have go as far as possible by using rayon, cotton or Nylon feet and tops. In a short time the latter three fibers will be the only ones available.

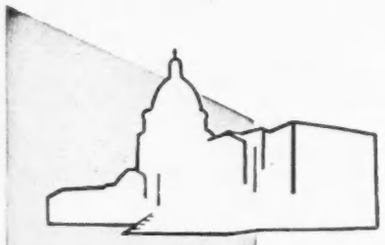
In order to make rayon supplies available to hosiery mills, the Government has ordered rayon producers to allocate 10% of their production, in suitable sizes, for the hosiery industry. There is a real difficulty ahead in the scant supply of deniers from 40 to 100 which are the only ones suitable for the types of hosiery now in vogue. Rayon producers will be hard put to increase production in those sizes, or other users of the finer deniers will suffer a pinch in order that poundage may be turned into hosiery. Knitters themselves prefer the higher tenacity rayons and it is definitely a matter of time before sufficient quantities of these will be available.

The raw silk market reacted to the approach of "freezing" as might be expected. On Friday, July 25, the exchange jumped some 15% in price and Crack XX 78% went up to about $3.65 on the local spot market. On July 28, acting on request from Leon Henderson, the Silk Exchange suspended trading.

Conferences are the rule of the day and a committee appointed by Earl Constantine, president of the National Association of Hosiery Manufacturers, some time ago to look into emergency raw materials, is moving into the front line. J. E. Millis, of Adams-Millis Corp., is chairman.

Price-Ceiling Jam Draws Congress In

Textile men get boost in gray goods basis; politics confuses law writing



McGRAW-HILL WASHINGTON BUREAU

PAUL WOOTON, Chief Correspondent
Blaine Stubblefield
Irvin D. Foos Carter Field
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By BLAINE STUBBLEFIELD

IN RESPONSE to upset markets and continued protests, OPACS Administrator Leon Henderson invited 15 textile men to Washington, and made upward adjustments on cotton gray goods and combed yarn, in accordance with facts presented by the group. The manufacturers unanimously agreed to cooperate under the new ceiling figures. Two days before amending the cotton goods schedule, Mr. Henderson announced "a comprehensive program for price stabilization in the cotton textile *and rayon* industry . . ."

At this writing the rayon manufacturers had reached an agreement with OPACS on prices, and it was thought that Henderson hoped and possibly expected that the industry would go along under this verbal deal. But his aides said that he planned to put an official schedule on rayon in due course. Some rayon men, visiting Washington, expressed satisfaction with the manner in which rayon representatives had handled the approach to OPACS. Cotton manufacturers praised the work of James P. Davis, associate price executive, for his part in the cotton-textile negotiations.

Those are the new essential facts in the textile price story. But unfortunately they are not quite that simple. The economics of inflation control are complicated beyond the powers even of Yale professors. And of course the whole anti-inflation program is tied solid to politics. Because cotton-textiles get their raw material from the farm, and because agriculture has the strongest of all political blocs in Congress, the textile price program becomes the general price battle line.

"Opax," as Washington calls it, mainly through the personal force of Leon Henderson, has managed to hold down commodities that seemed poised for a spiral. Chrysler challenged him and won by default. Cotton-textiles won by compromise. But that compromise, and indeed all the price schedules, appear now to be contingent upon Congressional action. For all observers, including Mr. Henderson, now see that the price-lifting power of scarcity cannot be resisted with his present empty threats of publicity, plant seizure, and stoppage of materials.

In fact, Henderson is telling Congress about the need for legislation; he helped write the law now before Congress. He says he'll try to hold the inflation down with whatever law Congress gives him, but he will lay the responsibility for whatever happens in the lap of Congress. In order to prevent inflation Congress has got to permit effective controls on the prices of *farm produce*, and on *wages*. That is the very thing Congress would like most *not* to do. But if Congress does not do it, the Administration, and Mr. Henderson, will be out from under.

IN FORMULATING A LAW, Congress, broadly speaking, can choose between two alternatives. It can freeze all prices as of a given date, and then start making selective adjustments on the basis of a base period during which prices were relatively in balance. Or, it can simply go ahead with Henderson's present piece-by-piece program, making adjustments for increased costs when necessary, and implement the administrative agency with punitive authority. The bill when finally enacted may be entirely different from the one introduced.

Congress almost certainly will not legislate prices on agriculture below parity. And it will not freeze the wages of labor. Most likely it will try to leave the dirty job of haggling to Henderson, or a board, as it did on the strike issue.

Resistance to the price ceilings in the textile industry hurried the Administration's call for legislation. Mr. Henderson said that he amended the schedules upward "because of increased costs in the industry." True of course, but he did it also to minimize any aid and comfort the textile industry might give to agricultural enemies of legislation by Congress—after he became convinced that legislation was necessary.

In his converted apartment-house office, stocked with heavy-reading books on economics, Mr. Henderson told TEXTILE WORLD's correspondent that he is deeply interested in the welfare of the textile industry. He said he was glad that it had been possible to reach the unanimous agreement with the cotton-textile panel of 15 men. Asked if he had said that the textile industry was one that could expand without interfering with munitions, he answered yes, and added that it should be allowed to do so. To the suggestion that expansion will depend on reasonable profit, he said that was the purpose of the upward revision in the schedule.

The Administration wants people to buy textiles—wants textiles to help absorb the purchasing power which is increased by the shortage of civilian goods. OPACS officials told TEXTILE WORLD they were surprised at the low distribution of textiles in this country. They said that in their opinion there had been no dislocation of production and distribution of goods as a result of their price ceilings. The upset, they believe, was in the markets alone.

CHRONOLOGICAL STORY of price ceilings on textiles follows:

May 24: combed cotton yarn schedule was issued, effective May 26.

Amended Ceiling Prices on Cotton Gray Goods Issued July 21 in Cents per Pound

Print cloth and carded broadcloth	43¢
Combed broadcloth	61¢
Sheetings	35½, 36½, 38¢
Osnaburgs	29 and 32¢
Tobacco cloth	46¢

Premium for feeler motion, 1¢

In combed yarn schedule 3¢ was added to singles in all counts and 1¢ to two-ply

June 20: amendment issued to exempt yarn for export and to make minor adjustments on coarse counts prices, retroactive to May 23.

June 30: ceiling-price schedule on six leading types of cotton cloth became effective.

July 9: Henderson issued official warning against violation by gray goods sellers.

July 13: cotton textile advisory panel was appointed, representative of most branches of the industry, to advise OPACS.

July 15-16: panel met in Washington, reached agreement to cooperate under specified increased ceiling prices.

July 18: Henderson announced comprehensive program for price stabilization in cotton textiles and rayon.

July 21: amended schedules adjusting upward the ceilings on cotton gray goods and combed cotton yarn were issued. The amendments on gray goods were retroactive to June 30; on yarn they were effective the day of issue.

This story has been told, up to the warning against violation. In that statement, Henderson said that sellers had been offering gray goods at prices above the ceiling, promising a refund if the OPACS order were found valid in court. This practice, said Henderson, would result in textile prices equal to those existing before the schedule was issued. He asked reports from buyers on violations, but made no threat of punishment.

The cotton-textile advisory panel was appointed in reply to continued protests from the market and the industry. Henderson, in his announcement, denied reports that OPACS had acted without consulting the industry. He said conferences were held with 20 or 30 leaders. Other OPACS officials told TEXTILE WORLD a great amount of discussion and research had preceded the ceiling schedules. Henderson said again that he could not deal with trade associations, because serious anti-trust questions are involved. The meetings on July 15 and 16 were closed to press and public.

Officials seemed to feel no apprehension concerning rayon fabric prices. They took occasion to point out that increasing raw material cost has not been evident in synthetic goods as it has been in cotton goods.

In conclusion it should be noted that few Washington observers take any stock in the possibility of successful court action against the anti-inflation project. Lawyers could make a case against Henderson for overstepping his authority, of course. But the Department of Justice could make still a better one against the Administration for violating the anti-trust laws—if it wanted to. You might as well skip it.

★ ★ ★

In New York, following the rise in print-cloth ceiling price from 39¢ to 43¢ on July 21, the gray goods market opened up on a restricted basis. For a time, while cotton prices were soft, mills with nearby production were willing to sell on the ceiling basis. When cotton strengthened over 17¢ there was hesitation by sellers and some mills again withdrew. Should cotton advance further, as some authorities confidently expect, mill executives believe the ceiling must again be raised. When cotton broke on introduction of price-fixing legislation, further uncertainties rendered the market limited with offerings in narrow scope. Mill stocks are light and production is under order for several months ahead.

"In terms of familiar items of consumer goods," W. Ray Bell, president of the Association of Cotton Textile Merchants, said following OPACS action on July 21, "the raise in print cloth selling price by OPACS will mean an increased cloth cost of only a few cents. Actually the new ceiling is lower than the June prices prior to the original OPACS order."

Henderson and Hitler

AS THE ATTEMPT by OPACS to set price ceilings progresses, we become more and more convinced that the whole move, unless re-conceived and re-directed, will end up as another abortive experiment.

So, as a start, let's re-appraise what OPACS is trying to do. It is seeking to prevent the inflationary result of defense-money spending. Now this writer holds no brief for inflation, or for the headaches that follow it. No one who lived through the 1920's can like inflation. No one likes headaches, except possibly the makers of aspirin tablets.

But an autocratic attack upon inflationary trends, through a series of disjointed dicta setting maximum prices on certain products, is completely incompatible with our system of free economic enterprise.

That system entails—like it or not—intermittent periods of glut and famine, of profit and loss, of feverish activity and depressed conditions. Every act of Government in this country from the passage of the first anti-trust law to the beginning of the current great national experiment has been to encourage free competition and therefore to permit these bulges and dips in the economic curve.

Let's admit that the resulting ragged line is not too hot. Any textile manufacturer would admit that, freely. But what can we do about it?

One way, of course, is for the State to control everything. That's what Germany and Italy have done. A minority in this country—not only among bureaucrats in Washington but among gullible business men throughout the nation—favors such a move. The bureaucrats favor it, because it would perpetuate their jobs; a few business-men favor it because they have swallowed a vision of a man on a white horse. Our only comment to the latter group is to repeat: Ask Thyssen; he knows.

Another way is the Leon Henderson method: Set arbitrary prices on individual products, despite the fact that raw material and labor costs entering into those products soar, largely as a result of the Governmental policies of the last eight years.

This latter method is what is being tried on the textile industry—and on some other industries—today.

Even that method would be partly palatable if it had some semblance of democratic procedure. But it hasn't. In the hands of one man—Leon Henderson—rests the fate of American industry. And we say that advisedly, because the man who fixes prices rules the industries whose prices he fixes.

Trying, as this writer always does, to find a positive rather than a negative answer to a problem, he repeats the suggestion made in these columns last month: the creation of a 1941 model of NRA, representative of both management and labor, and integrated into OPM. Henderson's appointment of a textile advisory committee was a pleasant gesture in that direction, and helped to iron out a few transient questions in connection with textile price ceilings, but it didn't even approach a basic attack upon the real problem.

In the solution of that problem, Henderson would retire as Czar of American Industry, and assume his rightful position as an intelligent economist whose talents could be used by Government, industry and labor in the working-out of their destiny by democratic procedure.

But the time to do this is now. If we go too far along the road industry is being forced by OPACS to travel, Henderson will become the Hitler of our American economic system.

True, Henderson doesn't *look* like a dictator. But neither does Hitler.—*Editor.*

Textiles Take to the Air

Airplane, parachute, and balloon cloth among items purchased at Wright Field

By WILLIAM G. ASHMORE
Southern Editor, TEXTILE WORLD

Fig. 1. Mercerized cotton cloth is used for covering control surfaces of airplanes

WHEN ONE SEES a shiny "all-metal" U.S. bomber or fighter plane high overhead, it is difficult to visualize the wide variety of textiles necessary directly and indirectly to keep that plane in the air. Some of the major items required by the Air Corps are mercerized cotton airplane cloth used for covering control surfaces, trainer planes and tow targets; parachute silk; cotton, silk, linen and synthetic cordages; cotton and synthetic webbing; gas-proofed balloon cloth; cotton cloth for tarpaulins and mechanics' coveralls.

It is comforting to know that linen and silk virtually are the only "strategic materials" in the textile field which might be cut off in time of war, and that several satisfactory substitutes have been developed for these over a period of years. These substitutes include Tenasco, Fortisan, Nylon, and the new heat-resistant cotton cord. As a matter of fact, the only shortage problem not entirely solved to date is that of jute packing used to prevent joints from leaking liquid. Cotton treated with graphite and oil is being used as a substitute, but this is not entirely satisfactory.

While not a textile material, polyvinyl chloride—used to treat sheep shearling, shelter tents, chemically-resistant aprons, etc.—has been replaced in some specifications with a polyacrylate more easily obtainable.

More high-grade cotton is used than any other single textile fiber in the aviation industry. Greatest quantities go into airplane, balloon and cover-all cloth, the general requirements for which are shown in Table I.

All photos courtesy of U. S. Army Air Corps.

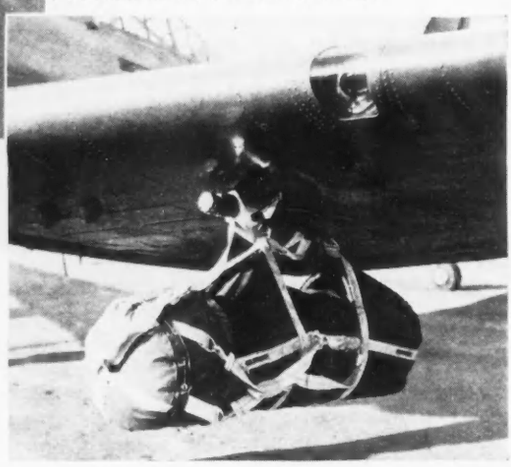


Fig. 2. Guns, ammunition, and limited supplies, rolled in felt pads, these can be parachuted to earth with parachute troops, and are actuated by the same static cord rig which automatically opens the 'chutes of the troopers; varicolored canopies guide each trooper to his own guns and ammunition

COTTON AIRPLANE CLOTH, of which from 2,000,000 to 5,000,000 yd. will be required during the present fiscal year, ordinarily is made from Nos. 1 or 2 Pima cotton or better, but if a shortage of this cotton occurs, specifications can be changed to permit the use of Nos. 3 and 4 Pima or combed peeler yarn. A considerable amount of supplementary cotton webbing and tape is required in connection with airplane cloth for use as reinforcing over the rib in the wing. Ordinary grade cotton is acceptable in the manufacture of this supplementary material, as no great strain is placed on it.

Balloon cloth is purchased in an unbleached and unmercerized condition to assure proper bonding with rubber or other gas-proofing compounds. This fabric calls for Nos. 1, 1½, or 2 Pima cotton, but experiments are going forward toward the use of synthetics to anticipate any Pima shortage. Neoprene balloon cloth has been modified also to anticipate any shortage of this material. This is a particularly important

TABLE I—Major Aeronautical Requirements for Cotton Goods

Type of cloth	*Airplane*	*Balloon*	*Coverall*
Weight (oz./sq. yd.)	4.0 max.	2.0	8 to 10
Tensile strength			
Warp (lb./in.)	80 min.	40 min.	100 min.
Filling (lb./in.)	80 min.	40 min.	65 min.
Ends per in.	80–84	100 min.	90 min.
Picks per in.	80–84	100 min.	50 min.
Yarn size			
Warp	60/2	80/1	—/1
Filling	60/2	90/1	—/1
Color	Natural	Natural	—
Finish	Wash, frame, calender	Wash, singe, frame, calender	Vat dyed
Weave	Plain	Plain	3/1

TABLE II—Parachute Fabrics

Type	*Silk*	*Viscose*	*Cotton*	*Nylon*
Weight (oz./sq. yd.)	1.6	1.8	2.05	1.8
Tensile Strength (lb./in)				
Warp	40	50	38	60
Filling	40	50	38	60
Tear strength (lb.)				
Warp	4.0	2.0	2.5	4.0
Filling	4.0	2.0	2.5	4.0
Weave	2/1	1/1	2/1	2/1
Air porosity (Cu. ft. air per sq. ft. cloth at ½ in. water)	80–140	80–140	80–140	80–160

change, in view of the fact appropriations have been set aside for a large number of barrage balloons to be made during the present year.

A great deal of silk is still used in parachutes, due to the fact that plenty is available and the personnel is used to its characteristics. However, new specifications call for substitution of high-strength synthetics in the future—Nylon cellulose acetate, or viscose. Physical properties of the synthetics and cotton are compared in Table II.

IN MAKING EXHAUSTIVE TESTS of fibers suitable for use in parachute manufacture, the Air Corps found that both Nylon and Fortisan have a higher strength-weight ratio than real silk, this factor being determined by dividing the warp strength in pounds by the weight in ounces of 1 sq.yd. of goods. Another important discovery was that under exposure to weather conditions, Nylon, cellulose acetate rayon, and viscose rayon stand up as well as Japanese warp and filling silk. Curiously, Italian silks suffer considerably from exposure. The various types of viscose rayon when wet naturally showed a greater drop in breaking strength than real silk, Nylon, and acetate rayon. Vinyon is being investigated for aviation usage, but so far very little has been done with this fiber. No special use has been found to date for its property of fusing instead of burning.

Nylon probably has the edge on the other synthetics for parachute manufacture. The only objection noted to date is the fact that when woven the fabric is thicker than silk and some of the other synthetics. The maximum thickness for experimental parachute fabrics should not be more than 0.004 in. in order to fit into the standard pack. Nylon runs 0.005 to 0.0055 in., in comparison with silk, which usually varies between 0.0035 and 0.004 in. Porosity requirements for canopy cloth were written into the specifications several years ago and generally are familiar to manufacturers.

Most of the cordage used for parachute shrouds at the present time is made of high-grade thrown silk, but recently specifications were altered to substitute Nylon. Silk sewing thread has been replaced with Nylon.

Linen, formerly used for parachute harnesses, reinforcing tapes, bomb slings, and the like, has been entirely replaced by Nylon. In some instances cotton filling is added to give body to webbing so it will fit existing hardware. Generally speaking, Nylon is superior to the other fibers, although for certain types of webbing cotton is recommended.

Cotton tire cordage is being replaced by high-tenacity rayon, thus releasing a quantity of good quality cotton for other and more critical uses for which no suitable substitutes are available.

WOOL USED IN AVIATION mainly goes into flying clothes, pressed felt buffers, and interior trim of some types of aircraft. Great quantities of sheep shearling (tanned hide with short hair) are used for flying clothes, over 8,000,000 sq. ft. having been purchased last year. A warp-knit material has been developed as a substitute for camels' hair used in intermediate flying clothes. The only other innovation noted in flying clothes has been development of electrically-heated underwear to provide warmth without weight at high altitudes.

Fig. 3. Flyers' coveralls are made from an 8- to 10-oz. cotton fabric; webbing for supporting packs is now made from Nylon or cotton instead of linen

Fig. 4. Pursuit pilots' underwear; this experimental electrically-heated suit provides warmth when worn underneath regular flying clothes or coveralls

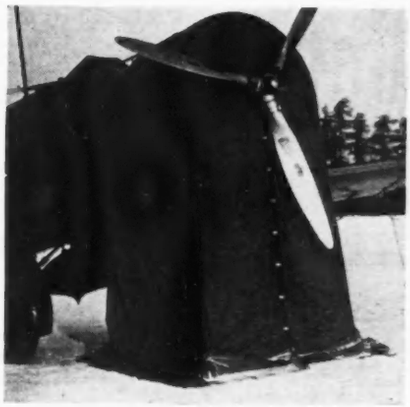


Fig. 5. Engine covers of this type made from cotton fabric, are used by the Air Corps to reduce time required to warm up a cold engine for take-off

Fig. 6. This electrically heated suit is being tested in a cold-room at Fort Monmouth, N. J., at —63°F

The foregoing discussion touches only a few of the major defense textiles used at Wright Field. Due to the rapidity of new developments in aviation it is very difficult for manufacturers to keep up with specifications and requirements unless a representative is maintained on the ground. Without personal representation, the best source of information is said to be the Government Advertiser, published at 258 Broadway, New York, which has representatives on the field at all times to report bids and specifications as soon as they are announced by the authorities.

Conserve and Substitute

Shortage of critical metals and chemicals forces new policy on textile industry

By WINN W. CHASE
Associate Editor, TEXTILE WORLD

"**STARTING NOW,** and to an increasing degree as the weeks go by, we are going to become, by force of circumstances, defense-conscious. Our purchases, our habits, our daily lives, perhaps even our styles will be controlled and limited by the requirements of national defense." This statement, made last month by Robert E. McConnell, chief of the Conservation Section, Office of Production Management, Washington, D. C., was not exactly news to the textile industry. For over a year hundreds of textile mills have been busy on defense orders. Since early spring shortage of metals needed for defense purposes has made it increasingly difficult to obtain prompt deliveries of textile machinery. More recently the supply of certain dyes and chemicals has become limited. Meanwhile many textile machinery companies have begun to devote part of their facilities to production of defense items, and the consensus is that if those machinery companies which have not yet offered to take on defense work do not volunteer in the very near future, they will be ordered by the Government to make specific items which are needed. It is too early to know just what will be the final effect of all this, but it is not too early to know that because of these shortages of raw materials the textile industry will be forced quickly to adopt a new policy of conservation and substitution.

It is important that textile men and machinery builders have an understanding of each other's problems, as close cooperation between the two groups will do much toward smoothing the path which is ahead. This is true also as regards relations between textile companies and dye and chemical companies.

From the standpoint of the machinery companies, the chief problem is to obtain certain metals, other raw materials, and manufactured parts which enter into the equipment which they build. At this writing industry-wide mandatory control has been imposed on aluminum, magnesium, nickel, nickel-steel, ferrotungsten, tungsten high-speed steel, machine tools, synthetic rubber, copper, cork, borax, polyvinyl chloride, zinc, and rubber. In addition, a mild form of inventory control has been imposed over the following metals: antimony, cadmium, chromium, cobalt, ferrous and non-ferrous alloys, iridium, iron and steel, lead, manganese, mercury, molybdenum, tin, and vanadium. Further, there is a critical list of approximately 300 items on which Army and Navy orders can automatically be given priority.

THE MAJOR PROBLEMS from the standpoint of the textile manufacturer are to obtain: (1) new productive machinery necessary to produce textiles for defense purposes or essential civilian needs, (2) new auxiliary equipment needed to increase plant efficiency or improve working conditions, (3) repair and replacement parts for existing machinery, (4) chemicals and dyes required in manufacturing and finishing of textiles for military and civilian purposes.

To assist manufacturers in obtaining equipment or supplies necessary to the fulfillment of orders for defense work, a system of priorities has been set up. This system is administered by the Priorities Division of OPM, and full information concerning it can be obtained from that Division. Much of the detailed operation of the system has been turned over to the Army and Navy. One of the methods employed by the Priorities Division to assist manufacturers who are having difficulty in obtaining needed supplies is the issuance, when necessary, of individual preference rating certificates. These certificates can be issued to a manufacturer, whether or not his production is purely defense, if his work is important to defense or essential for civilian needs. The purpose of the preference rating is to insure delivery on the required delivery date in so far as such delivery can be effected without prejudice to contracts or orders bearing equal or superior preference ratings, but if necessary, subordinating other contracts or orders. Preference ratings in order of precedence are *AA*, *A-1-a*, *A-1-b*, etc.; *A-2*, etc.; *A-10*, etc. The certificate illustrated covers a doubling machine for use in finishing fabrics for making barrage balloons, and carries the comparatively high rating of *A-1-d*. Most textiles for military purposes are on the critical list, and contracts or orders for such textiles carry a preference rating. If the textile manufacturer requires additional equipment to enable him to carry out a defense contract, he should apply to the contracting officer with whom he regularly deals and ask to have the rating extended to the machinery order. The contracting officer can do this on his own responsibility. Again, if a textile manufacturer requires new equipment for producing materials which have an indirect defense value or which serve essential civilian needs, he may be able to obtain a preference rating on the machinery by filling out and sending to the Priorities Division of OPM a special form, known as PD-1, which can be secured from any Federal Reserve Bank.

It is virtually impossible to obtain a preference rating certificate for machinery not necessary to facilitate production of goods for defense purposes or essential civilian needs, and the textile manufacturer will only harm himself by endeavoring to secure a certificate for such equipment. Under these circumstances, it is extremely difficult for a mill to secure equipment made from stainless steel, Monel metal, or other materials for which priorities have been set up unless it is required for defense work.

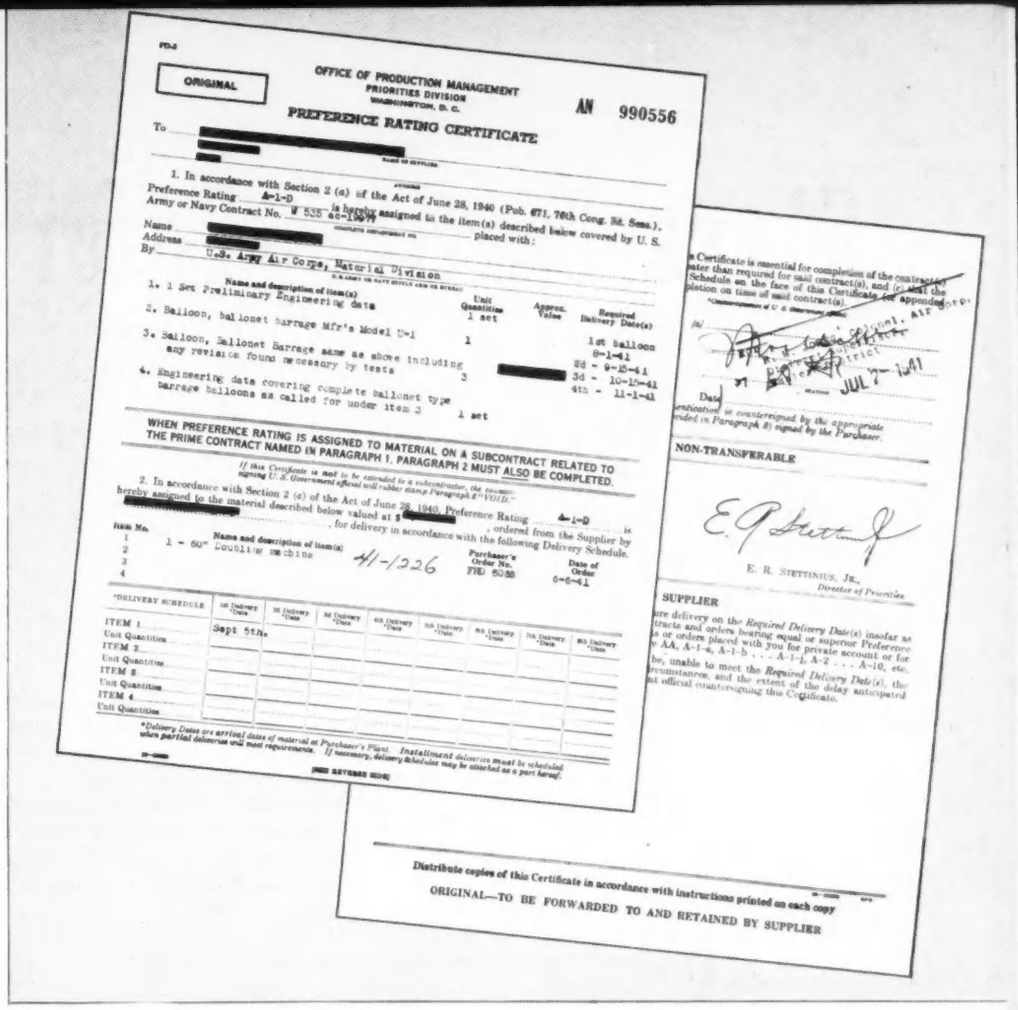
When a textile manufacturer receives a preference rating certificate for a specific machine or machines, he should furnish one or more photographic copies of it to the machinery builder, who, in turn can apply the same preference rating in obtaining from his suppliers materials needed to manufacture the equipment. The fact that an order for equipment has been assigned a preference rating does not mean that it will be filled before other orders received previously have been taken care of, but it does mean that it should be filled by the specified delivery date, even if it is necessary for the machinery builder to delay orders with a lower rating or no rating. Textile men should exercise reason in their use of the preference rating certificate; that is, they should not regard a certificate as a club with which they can attempt to force quick deliveries, but as an instrument which will asssit the machinery builder to give the best possible service.

MOST MANUFACTURERS of auxiliary equipment employed in the textile industry have also felt the effect of the shortage of metals. However, in many instances these companies, by making changes in design and by substituting

other materials for those which are scarce, are able to produce equipment well-suited for its purpose. Companies producing types of auxiliary equipment which are on the priorities critical list naturally have to give preference to defense orders. Thus far, however, textile mills have been able to obtain practically all types of auxiliary equipment required, although in many instances deliveries have been slower than under normal conditions. Several types of auxiliary equipment used in the textile industry are on the priorities critical list; and, if a textile manufacturer requires such equipment to enable him to complete a defense order, he can obtain a preference rating certificate, just as for productive machinery. Incidentally, one manufacturer of electrical equipment, reports that 95% of customer's orders carry preference ratings.

The importance under present conditions of an adequate supply of repair and replacement parts and supplies for textile machinery now in operation is generally recognized by machinery companies and, apparently, by OPM. Fortunately, most textile machinery firms anticipated that there would be an increased demand for such parts and began some time ago to build up raw material inventories, to expand their parts departments, and to stock their warehouses with finished parts and supplies. It appears unwise at this time for textile mills to attempt to build up larger inventories than usual, as purchases in excess of current needs might lead to an artificial scarcity. Instead, they should analyze their needs for the next several months and schedule their orders accordingly.

Chemicals on the priorities critical list as of July 7 included acetone, anhydrous ammonia, borax, boric acid, chlorine, cresylic acid, formaldehyde, hexamethylene tetramine, methanol, naphthaline, neatsfoot oil, phenol, polyvinyl chloride, potassium perchlorate, potassium permanganate, sodium hydrosulphite, sodium sulphoxalate, tricresyl phosphate, and zinc hydrosulphite. On the same date all chemical combinations having chromium as an essential and recognizable component were subjected to a general preference order. Chemicals employed in the textile industry which already are difficult to obtain, other than those mentioned above, include acetic acid, oxalic acid, zinc oxide, olive oil, tea-seed oil, tapioca, gum tragacanth, locust-bean gum, and certain vat dyes. Textile companies requiring these or other chemicals to enable them to complete orders for defense work can apply for preference rating certificates in the same manner as outlined in the discussion of textile machinery.



OFFICE OF PRODUCTION MANAGEMENT
PRIORITIES DIVISION
WASHINGTON, D. C.

ORIGINAL

AN 990556

PREFERENCE RATING CERTIFICATE

To [redacted]

1. In accordance with Section 2 (a) of the Act of June 28, 1940 (Pub. 671, 76th Cong. 3d. Sess.), Preference Rating A-1-D is hereby assigned to the item(s) described below covered by U. S. Army or Navy Contract No. W 535 ac-15674 placed with:

Name [redacted]
Address [redacted]
By U.S. Army Air Corps, Material Division

	Name and description of item(s)	Unit Quantities	Approx. Value	Required Delivery Date(s)
1.	1 Set Preliminary Engineering data	1 set		
2.	Balloon, ballonet barrage Mfr's Model U-1	1		1st balloon 6-1-41
3.	Balloon, Ballonet Barrage same as above including any revision found necessary by tests	3	[redacted]	2d - 9-15-41 3d - 10-15-41 4th - 11-1-41
4.	Engineering data covering complete ballonet type barrage balloons as called for under item 3	1 set		

WHEN PREFERENCE RATING IS ASSIGNED TO MATERIAL ON A SUBCONTRACT RELATED TO THE PRIME CONTRACT NAMED IN PARAGRAPH 1, PARAGRAPH 2 MUST ALSO BE COMPLETED.

If this Certificate is not to be extended to a subcontractor, the signing U.S. Government official will write across Paragraph 2 "VOID."

2. In accordance with Section 2 (a) of the Act of June 28, 1940, Preference Rating A-1-D is hereby assigned to the material described below valued at $[redacted], ordered from the Supplier by [redacted], for delivery in accordance with the following Delivery Schedule.

Item No.	Name and description of item(s)	Purchaser's Order No.	Date of Order
1	1 - 60" Doubling machine	41-1226	6-6-41
2			
3			
4			

*DELIVERY SCHEDULE	1st Delivery *Date	2d Delivery *Date	3d Delivery *Date	4th Delivery *Date	5th Delivery *Date	6th Delivery *Date	7th Delivery *Date	8th Delivery *Date
ITEM 1	Sept 5th							
Unit Quantities								
ITEM 2								
Unit Quantities								
ITEM 3								
Unit Quantities								
ITEM 4								
Unit Quantities								

*Delivery Dates are arrival dates of material at Purchaser's Plant. Installment deliveries must be scheduled when partial deliveries until most requirements. If necessary, delivery schedules may be attached as a part hereof.

(SEE REVERSE SIDE)

...Certificate is essential for completion of the contract(s) ...later than required for said contract(s), and (c) ...Schedule on the face of this Certificate for appended ...pletion on time of said contract(s).

...U. S. Army Air Corps, Material Division

JUL 7 1941

...certificate as countersigned by the appropriate ...rided in Paragraph 2) signed by the Purchaser.

NON-TRANSFERABLE

E. R. STETTINIUS, JR.
Director of Priorities

SUPPLIER

...are delivery on the *Required Delivery Date(s)* insofar as ...tracts and orders bearing equal or superior Preference ...s or orders placed with you for private account or for ...he, unable to meet the *Required Delivery Date(s)*, the ...rcumstances, and the extent of the delay anticipated ...ut official countersigning this Certificate.

Distribute copies of this Certificate in accordance with instructions printed on each copy

ORIGINAL—TO BE FORWARDED TO AND RETAINED BY SUPPLIER

Intelligent use of preference rating certificates will aid textile men in obtaining equipment and chemicals needed to fulfill defense orders

CAREFUL MAINTENANCE of equipment and proper handling of supplies of all kinds to prevent unnecessary breakage or waste will aid greatly in conserving the various metals, chemicals, and other materials which are not available in sufficient quantities to meet both defense and civilian needs. Substitution in textile equipment and in textile processing of materials which are more plentiful than those which are on the critical list will also aid in the conservation of the latter. A beginning has been made in the use of substitutes, but in the next few months much more will have to be done.

For some types of machine parts Sheradizing or other rust-proofing treatments are now being substituted for chromium plating or nickel plating; in other machines wood or certain plastics are replacing stainless steel and Monel metal; in still others iron, steel, or other materials are being used in place of aluminum. Such materials as Masonite, vulcanized fiber, and molded paper are being employed instead of scarcer materials in various types of textile mill equipment and supplies. In some instances redesigning of equipment has obviated use of die castings and antifriction bearings. In processing of textiles, white vinegar and formic acid are being used instead of acetic acid; potato starch and cornstarch are taking the place of tapioca; American-made products are replacing olive oil and tea-seed oil.

The machinery and chemical companies are in touch with the rapidly changing raw material situation, and many of them are keeping in close contact with Washington. For these reasons, they frequently are in a position to make suggestions regarding changes in machine design, use of substitute materials for certain parts, or even procedures in dealing with procurement officers or OPM officials which will enable their customers to obtain more prompt deliveries than would otherwise be possible.

Further, these producers are able very often to offer advice on proper use and/or maintenance of their products to secure better service, longer life, and less waste. Textile manufacturers should not hesitate to call on the suppliers for aid of this kind. At the same time, they should realize that the machinery and chemical companies are facing some difficulties of their own, which mill men can help to ameliorate by intelligent cooperation and by asking for deliveries on orders when they actually are required and not before.

Glass Textiles Enter New Stage

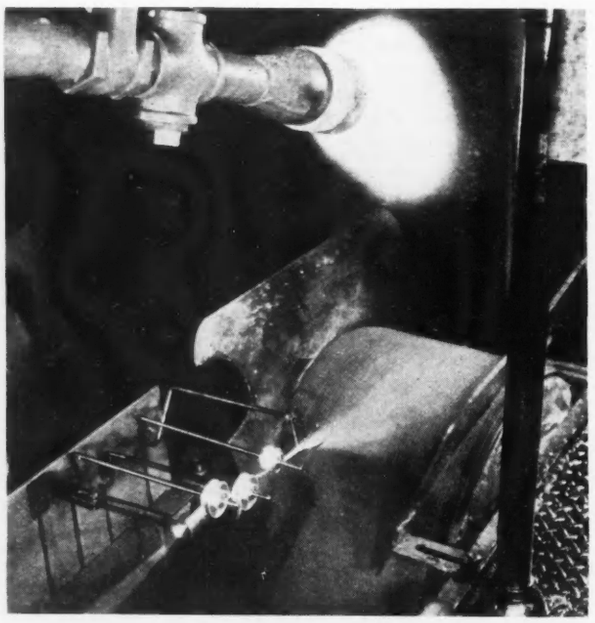
First used in electrical applications Fiberglas now seeks broader fields

By WINN W. CHASE
Associate Editor, TEXTILE WORLD

HAVING WON QUICK ACCEPTANCE for electrical applications and for certain other industrial purposes, Fiberglas began about two years ago to be employed in manufacture of drapery fabrics. Since then a large amount of work has been carried out on development of other decorative fabrics, including table cloths, shower curtains, bedspreads, and tapestries. Entrance of Fiberglas into the broader field of decorative fabrics has quickened the interest of textile manufacturers in glass fibers. As a result, many questions are being asked regarding Fiberglas—its properties, its present and potential uses, and its behavior on textile machinery. In order to get the answer to these questions, the writer visited the plant of Owens-Fiberglas Corp.; witnessed the manufacture of glass fibers, yarns, and fabrics; and talked with members of the staff of the laboratory devoted to research on fibrous glass. Following is a brief summary of what he saw and heard.

Fiberglas—which is the trade name adopted by Owens-Corning Fiberglas Corp. for glass manufactured in any fibrous or filament form—is made in two general types. One type is used as a thermal-insulating material, in air filters, etc. The second type, produced in either the form of continuous filaments or staple fiber, is employed in the fabrication of glass textiles. At present two different kinds of glass are used for production of Fiberglas yarns. Yarns intended for electrical application are made from a glass which is free from any metallic oxides and thus has a high dielectric strength and electrical insulation resistance. These yarns are suitable also for high-temperature insulation purposes and for manufacture of decorative fabrics. Yarns intended for use in chemical applications, such as filter fabrics, are made from a glass which is more resistant to acids, but which has a lower dielectric strength.

CONTINUOUS-FILAMENT FIBERGLAS yarn is produced by feeding marbles of specially refined glass into an electrically heated furnace which has a trough or V-shaped bushing made of metals of a higher melting point than glass. The molten glass emerges from many tiny holes in the bottom of the bushing. The filaments, averaging 0.00022 to 0.00025 in. in diameter, are combined to make one strand measuring 0.024 in. in diameter, pass over a rotating disk traverse as shown above, and are wound at a speed of over 5,000 ft. per min. on special spools. A number of strands can be plied together to produce a yarn of any size required. A small amount of an easily removable lubricant and coating is used on the continuous strand to facilitate manufacturing operations.



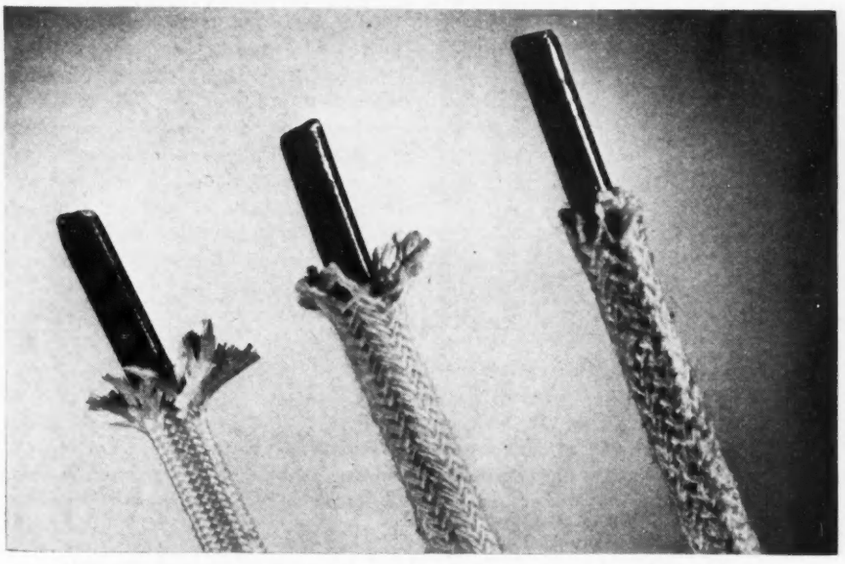
IN THE STAPLE PROCESS, the molten glass flows downward through holes of the same type as in the continuous process. As the fibers emerge, they are caught and are blown downward by steam under high pressure. Passing through a burst of flame to eliminate moisture, the fibers, averaging 8 to 15 in. in length, gather upon and are drawn from a revolving drum as shown above. The accumulation or "sliver" follows grooved wheels to be wound on revolving spools. The subsequent spinning operation is carried out on ordinary textile machinery. A small amount of an easily removable mineral-oil lubricant is used on staple fibers to improve the processing characteristics and to minimize friction between the individual fibers, which causes scratching and breakage.

REPRESENTATIVE TYPES AND SIZES OF FIBERGLAS YARNS

CONTINUOUS FILAMENT YARNS				STAPLE FIBER YARNS						
STANDARD YARNS				SINGLE PLY			TWO PLY			
Yarn Number	Twisting T. P. I.	Plying T. P. I.	Approx. Ave. Dia.	Yarn Number	Twisting T. P. I.	Approx. Ave. Dia.	Yarn Number	Twisting T. P. I.	Plying T. P. I.	Approx. Ave. Dia.
ECD 450-1/0	2.5 Z	—	.0045″	ESF 6.2/1	3.5 Z	.044″	ESE 6.2/2	3.5 Z	3.2 S	.067″
ECD 900-1/2	5.0 Z	4.6 S	.0044″	ESF 10/1	4.2 Z	.040″	ESE 10/2	4.2 Z	3.9 S	.060″
ECD 450-1/2	5.0 Z	4.6 S	.005″	ESF 12.5/1	4.4 Z	.028″	ESE 12.5/2	4.4 Z	4.1 S	.057″
ECD 450-2/0	2.5 Z	—	.005″							
ECD 450-1/3	5.0 Z	4.6 S	.007″	ESF 19/1	6.8 Z	.025″	ESE 19/2	6.8 Z	5.5 S	.041″
ECD 450-2/2	5.0 Z	4.6 S	.009″	ESF 25/1	7.9 Z	.019″	ESE 25/2	7.9 Z	6.2 S	.029″
ECD 450-3/2	5.0 Z	4.4 S	.0125″	ESF 31/1	8.4 Z	.014″	ESE 31/2	8.4 Z	6.6 S	.024″
ECD 450-3/3	5.0 Z	4.4 S	.016″	ESF 40/1	9.1 Z	.012″	ESE 40/2	9.1 Z	7.0 S	.018″
ECD 450-4/3	5.0 Z	4.4 S	.018″	ESF 50/1	9.4 Z	.010″	ESE 50/2	9.4 Z	7.2 S	.017″
ECD 450-5/3	5.0 Z	4.4 S	.0195″	ESF 70/1	9.6 Z	.009″	ESE 70/2	9.6 Z	7.2 S	.016″
ECD 450-5/4	5.0 Z	4.0 S	.021″	ESF 100/1	10.95 Z	.007″	ESE 100/2	10.95 Z	7.7 S	.012″

YARN SIZES AND PROPERTIES. The size of Fiberglas sliver, roving, and yarns is based on the yardage of glass fiber in a pound, the count or number of the yarn multiplied by 100 being the nominal yardage in a pound. Thus, a 900 yarn contains 90,000 yd. per lb. When two strands of 900 yarn are twisted together the construction is designated at 900-2/0. When two of these plied yarns are twisted together, the resulting plied yarn is designated at 900-2/2. Actual yardage of the 900-2/2 yarn will not be quite 22,500 yd., but will be 4 to 7% less because of contraction due to twist and presence of the coating or lubricant. Typical sizes and construction of Fiberglas yarns are shown in the above Table. The first letter indicates the glass composition (E for electrical glass; C for chemical glass); the second letter, the types of yarn (C for continuous filament, S for Staple); the third letter, the diameter of the fiber or filament from which the yarn is made. Glass fibers are solid, circular in cross-section, and smooth. Tensile strength of the basic 102-filament Fiberglas yarn is 6.3 grams per denier, as contrasted with 2 grams per denier for ordinary viscose rayon and 5 grams per denier for Nylon. Elongation at break is low, averaging between 1 and 2%, as contrasted with about 20% for both viscose rayon and Nylon.

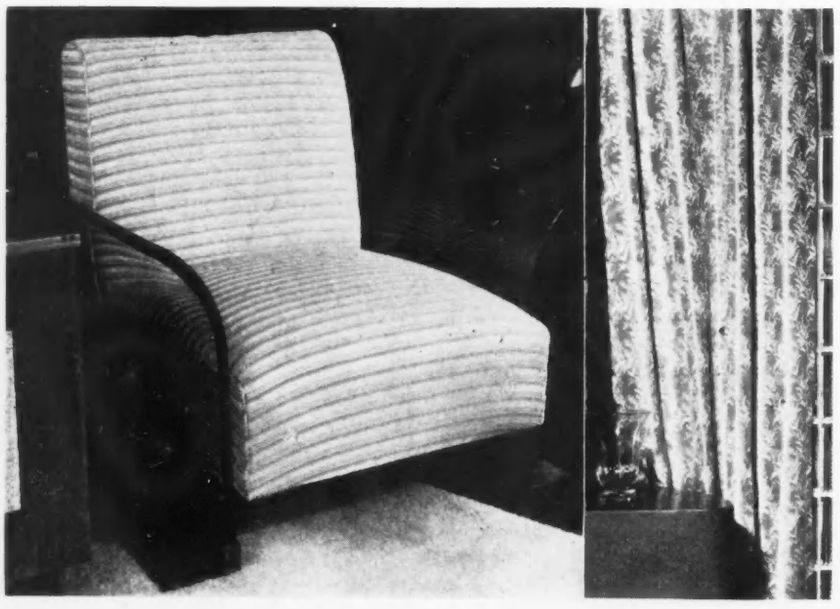
Tensile strength of yarns spun from staple fiber is somewhat lower than that of continuous filament yarns and elongation is higher (2½ to 4%). Fiberglas textiles are non-flammable and highly heat-resistant. They withstand temperatures in excess of 1000° F. without impairment of their dielectric strength. At temperatures of about 650° F. there is a loss of tensile strength and resiliency, and somewhere above 1200° F. the fibers begin to soften and melt. The individual fibers are non-hygroscopic and do not absorb moisture. However, fabrics woven from them are more susceptible to mechanical damage when wet than when dry. The fibers lose strength when abraded, and hence, unless they are protected by a flexible coating, are not suitable for applications involving severe flexing. Chemical Fiberglas is resistant to all acids, except hydrofluoric and phosphoric, but is attacked by strong alkalis. Glass textiles are mildewproof. Yarns made from Fiberglas are approximately 2½ times as heavy as cotton yarns of the same diameter, but are lighter for equivalent strength. Being waterproof, glass cannot be dyed by the usual processes. It is possible, however, to apply surface colorings.



Electrical applications for Fiberglas include these braided sleevings

ELECTRICAL APPLICATIONS. In form of sliver or roving, Fiberglas is used in cable construction and similar applications where a space-filling material is required. Tying cords are employed chiefly for binding wires, coils, lead wires, and other parts in electrical equipment, and in cores for resistors and in heating elements. Braided cords are used primarily in cable construction as a spacing conductor between the inner conductor and the outer conducting sheath. Fiberglas electrical insulating tapes are applied to coils, cables, and other electrical elements. Braided sleevings (shown at left) are applied to lead wires, conductors, etc. Electrical insulating cloths woven 38 in. between selvages are used in the manufacture of varnished fabrics, laminated products, and Fiberglas-mica combinations.

INDUSTRIAL USES. One unique industrial uses for Fiberglas fabrics is in manufacture of turbine-insulation blankets; these blankets (shown above) consist of Fiberglas material inclosed in a Fiberglas fabric and stitched with Fiberglas cord. Other industrial uses of glass fabrics include anode bags employed in electroplating; pump diaphragms; tapes and cloths resisting high temperatures, fumes, and acids; and filter bags employed for filtration of hot gases in ore smelting and removal of flue gases. Fabrics woven from staple fiber yarns of the chemical-resisting type are finding application for filtration purposes. Work is now being carried out on development of airplane and balloon fabrics, awnings, tire cloth, etc. In form of roving or heavy yarns, Fiberglas is employed in production of braided and woven wicks for oil lamps, heaters, and cigarette lighters. Marine uses of Fiberglas fabrics are expanding rapidly because of their lightness in relation to strength, fireproofness, and durability.



DECORATIVE FABRICS. First introduced about two years ago, drapery fabrics woven from Fiberglas yarns have steadily grown in popularity. The properties of glass textiles are such that they appear to be particularly applicable for such uses as curtains, tapestries, upholstery, lampshades, shower curtains, table cloths, bridge-table covers, hearth rugs, and bedspreads. Development work on these and other types of decorative fabrics is now proceeding briskly, and commercial production of most of those mentioned has been active for several months. At present no serious attempts are being made to extend the use of Fiberglas to the apparel field, other than for millinery.

FABRICATION. As no textile mill had had any experience in handling glass fibers, the producers installed spinning, winding, weaving, braiding, and other textile equipment. It was found that no serious difficulties are involved in spinning the staple fiber or in warping and weaving Fiberglas yarns. In spinning drafts up to 40 are possible. Warping is carried out on the silk system. Neither the continuous filament yarns nor those spun from staple fiber are warp sized; but it is believed that under some conditions warp sizing of the latter type of yarns may be advantageous.

In weaving, speeds of 100 picks per minute or better are maintained. Use of chromium-plated reeds has proved advisable. Selvages are run independently of the body of the warp. Due to the slipperiness of glass yarns, a heavy tension on the warp is provided by a spring tension device. As changes in room temperature affect the contraction of the warp, a uniform temperature should be maintained in the warping and weaving departments. A 45 to 56% R.H. is satisfactory.

Fiberglas yarns now available are not entirely suitable for knitting on a commercial scale. It is quite possible, however, that as finer fibers or filaments are developed, it will prove feasible to produce more pliable yarns which will be satisfactory for knitting.

Careful investigation has indicated that use of glass fibers in fabrication of textiles involves no health hazard.

MERCHANDISING. As demand for some of the products used for electrical-insulation purposes exceeds the capacity of the Owens-Corning textile plant, arrangements have been made with a number of narrow-fabric manufacturers for production of Fiberglas braids, tapes, etc. Owens-Corning does not make the impregnated or varnished sleevings, varnished fabrics, Fiberglas-laminated products, or Fiberglas-mica combinations; but has made arrangements with the manufacturers for the sale of these products, which can also be obtained directly from the manufacturers or from certain supply houses. The indications are that Owen-Corning will not go into the manufacture or sales of decorative fabrics, but will furnish the yarns to the mills and will cooperate with them in development of new products. Whereas the producers of Fiberglas are enthusiastic as to the possibilities of glass textiles, they are making every effort to prevent the exploitation of Fiberglas for uses for which it is not satisfactory and to confine it to those applications where glass fibers offer definite advantages.

Textile Half-Year "Incredible"

Activity curve goes through the roof—Need for restraint and abatement

By DOUGLAS G. WOOLF

EVEN AFTER CHECKING and double-checking the figures on textile mill activity for the first-half of this year, this writer still finds it difficult to believe them. Having dealt with textile statistics for a good many years, he just doesn't recognize the astronomical figure of 184 for TEXTILE WORLD's index of textile mill activity (on the basis of 1923–25 as 100.) He finds it hard to take in the fact that the industry is running along at a rate nearly twice that of an assumed "normal" year.

If this rate continues to the end of 1941, the activity for the calendar year will be 40% greater than 1940, which in turn was 8% greater than 1939, which in turn was in itself an all-time record year up to that time. The fantastic boom is shown dramatically in the accompanying table giving the index numbers from 1929 through the first half of 1941.

TEXTILE WORLD'S Textile Mill Activity Index
1923-25 average=100

1929	115
1930	89
1931	93
1932	83
1933	104
1934	90
1935	105
1936	124
1937	125
1938	103
1939	132
1940	142
1941 (first-half)	184

By individual fibers, wool made the greatest percentage gain; consumption during the first half of this year was about 85% greater than the corresponding period of last year. Cotton made the not inconsiderable advance of 35% while silk, filament rayon, and staple rayon each increased approximately 20%.

IT WOULD BE PLEASANT to stop this article here, on a note of elation. Everyone likes records, especially all-time highs. And certainly the textile people were starved for many years for the want of a good old-fashioned boom.

But, like the preacher who prayed for rain for days and finally got a deluge, the industry is getting, this writer believes, more than it bargained for and more than it can handle.

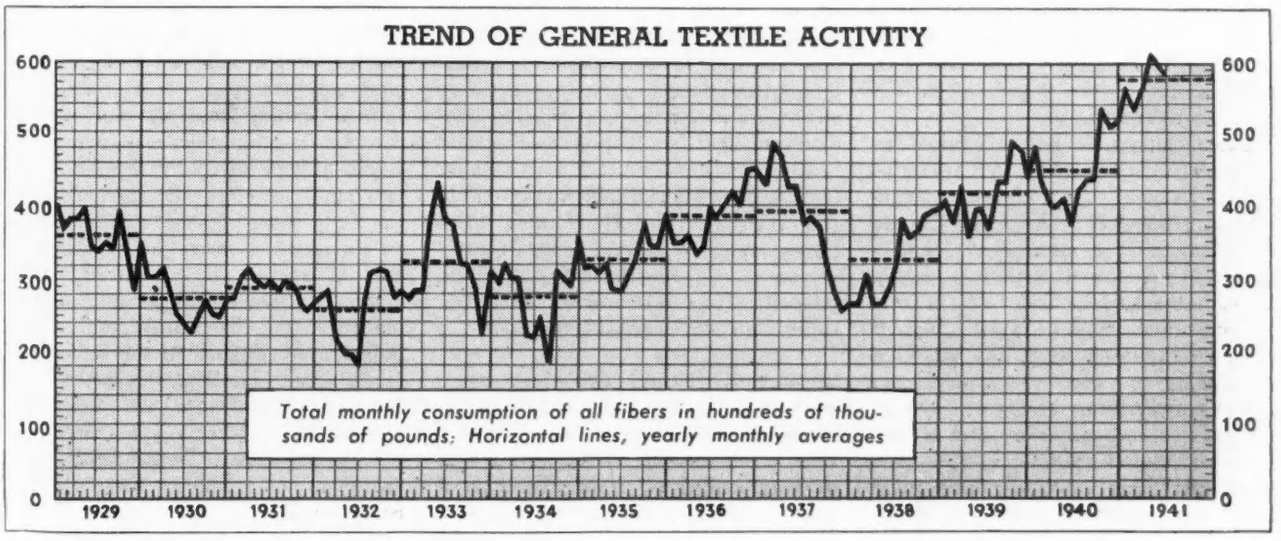
In other words, he sees the time at hand for firm putting-on of the brakes. It just isn't in the cards for this record output to be absorbed indefinitely. The defense needs plus the civilian demands do not warrant it. Furthermore, every indication points to an eventual decrease in civilian purchases, due to higher prices, higher taxes, and the general effect of a war economy. The smart thing to do would be to begin to anticipate that retraction NOW.

No one need get panicky about it. The situation is still well in hand. Goods have gone into actual use, either for defense or for civil purposes. But beyond a certain point lies nothing but speculation.

In May we said in these columns: "The caution light has not really flashed yet. It *will* flash, sometime within the next several months. Watch for it!" We have a hunch that its flash could be seen dimly during the future few months if textile manufacturers weren't too busy to look for it.

We therefore suggest that they take an evening off right soon and think about 1937. Then they can make up their minds whether they want another boom to turn into a debacle.

This swell activity performance can be put to good use if it is not carried to extreme. The industry can make money without an index of 184. It should begin to get ready to prepare for getting along without such an index.



Fatigue Costs You Money!

Defense speed-ups increase chances of loss, and call for action on problem

By HOWARD P. GALLOWAY
Assistant Editor, TEXTILE WORLD

FATIGUE COSTS YOU MONEY! Whether you are the president of a textile mill or a floor sweeper, an overseer or an operative, a stenographer or a stockholder, you help pay the bill that is handed industry each year by this unseen foe. The size of that bill has been estimated by those who ought to know at two billion dollars annually. Fatigue is always a factor in industrial operation, in greater or lesser degree. Its elimination, or the minimization of its effects, is always desirable. In times of stress and emergency, like the present, control of fatigue is vital.

Production speed-ups, longer hours, unsettled conditions, nervous tension, and other causes of fatigue are greatly increased in days such as these. Similarly, prevention of the effects of fatigue—increased seconds, lowered production and personnel efficiency, jumps in accident rates, to mention a few—assumes increasing importance in times like these, when production must be maintained at peak volume and each worker's abilities utilized to the full.

What is fatigue? Fatigue is variously defined as weariness, exhaustion of strength caused by physical toil, lassitude of body or depression of mind resulting from continued muscular or mental strain or exertion. It is a condition of diminished ability, or actual inability, to perform a given act, irrespective of the feeling of being fatigued. It frequently shows itself in delay or uncertainty of proper reaction in a given situation.

Often, fatigue is not recognized as the underlying cause when an operative suffers an accident or damages materials in process. It is simpler to dismiss the incident as carelessness, incompetence, or inattention, than it is to dig beneath the surface and find the real reason, which may be quite different from the supposed cause. But this kind of digging is necessary if one is to achieve any lasting success in eliminating losses—both monetary and human—which result from fatigue. The most satisfactory way to handle such problems is to determine whether fatigue is a factor, and, if it is, to eliminate as many as possible of the causes of fatigue, and minimize such as cannot be completely done away with.

What causes fatigue? There are a great number of causes of fatigue. Some of them operate separately, others in combination. What causes fatigue in one employee may not in another. What may be an important cause on one job may be of only minor importance on another. A chart credited to the *American Journal of Public Health* divided factors in fatigue into two main groups: personal and circumstantial. Under these headings, a number of factors may be listed. Personal causes include the physical and psychological adaptability of the employee to the job he is performing, personal worries which the worker may have, age of the employee, the state of his health, etc.

The list of circumstantial causes is much longer. It is subdivided into those factors concerned with home conditions and those related to working conditions. Under home conditions may be noted the type and adequacy of the employee's housing, the economic status of the employee—that is, whether he has sufficient funds or is poverty-stricken, the type of amusements in which the employee indulges during his free time, the adequacy of the amount of sleep he gets, and so on.

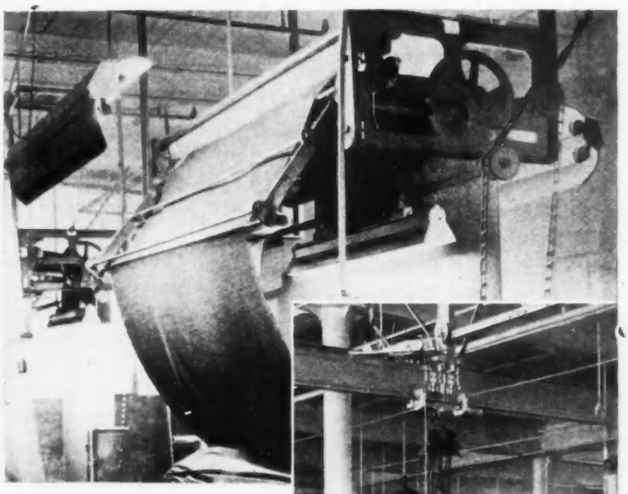
Working conditions which may be factors in fatigue include: hours, rhythm, complexity, danger, and/or monotony of work; speed, concentration, and experience required; machine design, tool design, plant layout, excessive vibration, noise, or smells; adequacy of light, ventilation, cooling and heating facilities, sanitary and washing facilities, and drinking water; problems related to posture, clothing, food, transportation, lifting of heavy weights; personnel, health hazards involved, production control, wages, incentives, supervision, and probably others.

IN ELIMINATING FATIGUE, first attention by industry undoubtedly will be given to fatigue induced by circumstantial causes directly concerned with working conditions. Naturally, some of these are more prolific causes than others. The hours operatives are required to work have apparently an important bearing on fatigue, and likewise on production. When it comes to lengthening working hours beyond the normal in an attempt to increase production, industrial studies have shown that the desired results are not always obtained. Output does not increase in proportion to increases in working time, although accidents, spoilage of materials, and similar items, are likely to show greater than proportionate increases.

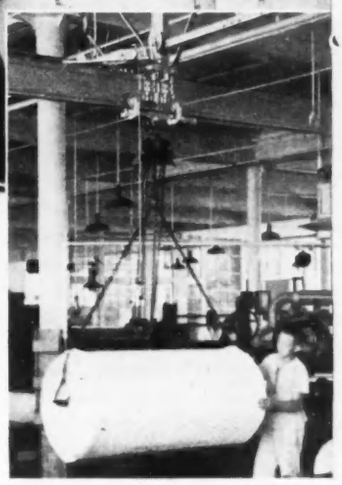
Likewise, increases in work-load should be instituted only after careful study of the possible detrimental effects of fatigue, both to operatives and to quantity and quality of production. It is pointed out that "strain increases at a rate more than proportional to the increased demand put upon a bodily function. An apparently slight increase in the demand may, by encroaching on reserves, change an occupation from one which can be continued in safety to one which is definitely detrimental." And "the risk of overstrain from being paced by one's work is increased by the fact that there is no direct means of measuring whether a work assignment that paces the worker will cause harmful fatigue in the long run." For instance, as noted in a recent issue of TEXTILE WORLD, "the determining factor in deciding how many looms a weaver should run is neither the wage cost nor the amount of work that a man can do in a day, but how many looms a weaver can run at the production which will show the lowest total cost per yard."

Some workers burn up more energy than others on a given task, more than is actually required by the job. Motion study is often the answer there. Carefully studying the movements of an operative at work and instructing him in means of correcting faults, eliminating useless motions, or adopting short-cuts, frequently results in a reduction of fatigue. At the same time, "individuals sometimes complain of fatigue, not because the individual himself is not turning out sufficient energy, but because he is utilizing this energy in non-productive ways. He may be utilizing it in worry, phantasy, and

Properly designed chairs aid correct posture and reduce fatigue



Adequate lighting decreases eyestrain, reduces wastage, helps prevent accidents



Use of conveyors when handling heavy loads obviates possibility of strain, injury and fatigue

day-dreams, so that he has not enough left for the everyday demands of life. If we solve the individual's emotional problems and turmoils, train his energy away from worry, and turn it into productive channels, he produces plenty of energy for the demands of life."

THE VALUE OF REST PERIODS introduced at various times throughout the working day and the resultant increased efficiency of workers have, it appears, been demonstrated quite conclusively as a result of numerous tests. In a comprehensive series of studies carried out some time ago in the mule-spinning department of a prominent woolen mill, introduction of two 10 min. rest periods in the morning and again in the afternoon resulted in startling improvements. Morale was generally admitted to be improved, both by supervisors and the operatives themselves. The officially recorded productive efficiency rose from about 70% to as high as 82%. It is interesting to note that when, some time later, "in response to a heavy demand for deliveries, someone in the factory took it upon himself to order the rest periods abandoned, the performance of the group returned to 70%." When the rest periods were again restored, and arrangements made so that the men could lie down during these periods, production figures "showed a 10% improvement . . . in spite of the fact that the machines had been shut down while forty men rested forty minutes every day."

Also significant is the fact that turnover of employees in this department, which had been at the high level of 250% as against an average of only 5% for the rest of the mill, decreased to the "normal" figure of 5%.

In surveys made by the International Institute of Industrial Psychology and covering more than a thousand British factories, 53% of all the plants reported that they have official rest pauses. In many others it was stated that unofficial rest pauses were in effect; this brought the total for both types to 67.6% of the plants surveyed. "A rest pause of 10 min. taken 2 hr. after the beginning of a 4½ hr. shift in the morning, and of a 4 hr. shift in the afternoon," is mentioned as the most frequent occurrence. Rest pauses are most commonly spent in the workroom and are almost invariably used for consumption of refreshments, the survey indicated.

"Rest pauses and refreshments are generally reported to have good effects on efficiency. Of 641 companies giving information on this point, 82% reported favorably effects on efficiency. The effects vary, on the whole, with the degree of organization of the rest-pause system."

Consumption of refreshments by workers during the working day seems to have an important bearing on reduction of fatigue. Both laboratory experiments and tests in industrial plants conducted are said to have definitely established that "addition of two extra lunches per day increases efficiency and output. Not only does the five-meal schedule show higher production results, but workers under observation have reported greater freedom from fatigue and increased muscular efficiency when eating at more frequent intervals."

Among methods of making available to workers, without the necessity of their leaving their work, the in-between "snacks" urged by proponents of refreshment pauses, is to have portable food and drink conveyors which are rolled from department to department on a regular schedule. Many textile mills already have such systems in operation, and it would appear that others could well adopt the practice. Types of equipment used range all the way from the lowly "dope cart" to complex conveyors which are electrically refrigerated and electrically heated, with provision for handling all types of food and beverages.

THERE IS NO JOB in any textile mill in which eyes are not important. Eyes are quick to react to fatigue, and lowered efficiency, wastage, and accidents are sure to follow in the wake of tired or strained eyes. For that reason, it is desirable that lighting be adequate, that causes of eyestrain be eliminated as far as is humanly possible, and that workers be tested to determine whether their eyesight is satisfactory for the work to be performed.

On the subject of adequate lighting in relation to fatigue, a British writer recently stated: "What is wanted wherever possible is concealed or indirect lighting which avoids both glare and

shadows, evenly distributed so as to penetrate every corner and enable workers to see the whole of their surroundings equally well from any position or in any direction. These are the characteristics of North daylight which is generally recognized as ideal. If we can make the distribution of our artificial light resemble that of North daylight in these respects, we shall find that the question of intensity or brightness is of secondary importance and that we can see very well with considerable less intensity than is usually thought necessary. In many modern factories, as at present lighted, one could reduce the current consumption by 50% and still have as good or even better lighting than before."

Examples in textile mills of the benefits of modern, engineered lighting are not difficult to find. A Massachusetts mill reports 3 to 4% increases in weaving efficiency, 22 to 25% reduction in defects and mending costs, and an increase in mill operatives' earnings through easier, quicker, and better production, as a result of fluorescent lighting installations in its plant. Similarly, the superintendent of a southern mill declares: "Our new lighting system has now been in service long enough for us to realize that our money was wisely invested. Poor light is a liability, increasing waste, impairing the workers' sight, and slowing up production. We are convinced that the new system has increased production, reduced spoilage, promoted cleanliness, bettered our product, and assisted materially in the prevention of accidents."

As regards eyestrain, it has been stated that "experience has shown that more and better inspection work is done when several moments of eye relaxation are permitted and the eyes fixed on some object at least 20 ft. away. One plant was able to locate its inspection bench at a window with an eastern exposure overlooking a park. Every half hour chimes of an electric clock sounded for possibly half a minute, during which interval the workers at that bench relaxed with eyes closed."

On the subject of determination by test that the eyesight of workers selected for particular tasks is satisfactory for the work to be performed, a medical doctor has noted that management does not always give sufficient attention to this matter. "You and I," he states, "if our eyes tire reading or concentrating on fine work, can shift and do something else for awhile. An inspector, a sorter . . . a girl looping hose eight inches from her nose, have their bread and butter tied up with 8 hr. of constant close work. He or she can't leave it, and he or she must do it well. Production rates and pay envelopes are involved."

IN SEDENTARY WORK, such as in inspecting, sewing, drawing-in, mending, and other textile-mill operations, correct posture is an important aid in reduction and elimination of fatigue.

"The importance of proper seating facilities as factors affecting production is becoming more widely recognized," states the industrial engineer of a New England knitting mill. "But even today a visit to some stitching rooms will show the worst conglomeration of chairs imaginable. Some chairs have empty thread cones under the legs to build up height; some will have as much as 6 in. of padding on the seats; some will have the legs cut short, with apparently no attention paid to the backs. In contrast, many of the more progressive companies provide posture chairs which are individually adjusted to insure correct and comfortable posture for each girl."

Another writer points out that "in many cases costs have been decreased by using chairs of the proper height and correct design to bring the employee into the most comfortable relation with his work."

Proper layout and housekeeping of work spaces is also a factor in fatigue. Workers should not be so cramped that they interfere with one another. Aisles should be wide enough to permit passage without interrupting other operatives. Where a job requires standing for considerable periods on hard floors, fabric mats or wooden sub-floors can be utilized to advantage. Excessive physical exertion with attendant possibilities of strain, injury, and fatigue, should be avoided wherever possible. Use of conveyors, hoists, etc., obviate these possibilities, and increase efficiency and speed. Increase in the size and weight of loom beams and use of mechanical hoists to reduce the amount of heavy lifting is a textile example of this type of thing. So is use in finishing plants of hoists and electric trucks to move cloth rolls, which are ever-increasing in size.

Elimination of unnecessary noise and vibration is likewise desirable. Laboratory research on the effect of noise has shown a difference of 19% in energy expenditure between working under noisy conditions and working where it is quiet. Temperature and ventilation should be watched closely if optimum operative efficiency is to be attained. Tests show that most workers become rapidly exhausted when doing work at 90° F. which they could accomplish easily at 50° F. Controlled distribution of salt tablets to operatives who must by the very nature of the process work in excessively hot quarters can do much to prevent ill effects. Similarly, operatives who must work where there are irritating or offensive odors or fog, are said to fatigue more rapidly than others not so troubled. Dust- and fume-laden air has a similar effect. Proper inclosure of machines, and provision of ample supplies of fresh air, can assist greatly in this direction.

Proper clothing for the job is important. Especially is this true in the case of female operatives, of which the textile industry employs large numbers. "Spike heels, open-toed shoes, tight fitting garments, create stresses and strains which contribute to our total fatigue problem," states one authority who adds, "a uniform for women workers can be made fashionable as well as comfortable by skillful propaganda."

Good drinking water and sanitary rest rooms are essential. Students of the subject have found that "both mental and physical fatigue can be reduced by a thorough wash-up. Adequate wash facilities, including showers, are a sound investment in efficiency and morale."

IN THIS SHORT REVIEW on the subject of fatigue in its relation to textile production and efficiency, it is impossible to go into detail on those causes which come under the heads of home conditions and personal condition. It should be pointed out, however, that such factors are of tremendous importance. As one writer has shown, leisure and recreation time frequently amount to more than working and eating time combined, and are usually slightly more than sleeping time. What a worker does with this time has a definite bearing on what he does in his working time, and "plans can be evolved that will promote interest and pride in his work and increase his general well-being."

Monotony is a frequent cause of fatigue among some operatives on some types of tasks. Arrangements for periodic change of work, provision of larger or smaller units of work, and use of music are claimed to be beneficial in combating fatigue of this type. As an example of the latter there can be cited a prominent Philadelphia textile mill which, for the last year, has employed mid-morning and mid-afternoon concerts of popular music in its clothroom where approximately 200 girls are engaged in burling and specking fabrics. Results achieved, according to the company's personnel manager and the foreman in charge of the group, include reduction of fatigue and promotion of *esprit de corps*.

Fabrics For National Defense

Descriptions of newly specified shirting percale and wind-resistant jacket cloth

WIND-RESISTANT PARKAS and jackets are two of the newer additions to the U. S. Army clothing list. They are made from lightweight fabric designed to provide maximum protection with minimum bulk. The fabric used, covered by Quartermaster Corps Tentative Specification P.Q.D. No. 1, is a 5-oz. combed-yarn fabric dyed an approved shade of olive drab with vat dyes. The specification states that filling may be single but warp must be 2-ply. The fabric is acceptable in either of two types; Type I is 2 up, 2 down twill, and Type II is poplin, or plain weave. Finished samples of both types must satisfactorily pass tests for fastness to weather, ordinary laundering, and laundering where agents contain active chlorine. Federal Specification No. CCC-T-191 describes the various tests and the methods by which they are to be carried out.

In finishing, the fabric must be singed and desized before dyeing, and the finished cloth may not contain more than 1.5% sizing; use of finishing or loading materials to increase strength or weight is prohibited. Shrinkage tolerances during laundering are 2% in either direction.

A durable water-repellent finish must be applied and must meet the following requirements: spray ratings of both Types I and II shall be 90 initially, and not below 80 after three launderings or three dry cleanings; minimum hydrostatic pressure ratings of Type I shall be 40 initially, 30 after three launderings, and 40 after three dry cleanings; minimum pressure ratings of Type II under the same conditions shall be 30, 20, 30. Air permeability of either type must not be less than 40 sec. for passage of 300 c.c. of air when tested by a Gurley Densometer using a ¼-in. orifice and a 5-oz. weight.

Minimum physical requirements of finished fabric are as follows: Type I—36 in. width, 5 oz. per sq. yd., 185x92 thread count, 160x70 lb. strength by 1x1x3 grab method; Type II—36 in. width, 5 oz. per sq. yd., 106x52 thread count, 115x60 lb. strength by 1x1x3 grab method.

[Although not stated in the specification, the following gray constructions are approximately correct to produce fabrics meeting requirements: Type I—37 in. 180x94, 84/2 warp, 36/1 filling, 3.0 yd. per lb.; Type II—37 in., 102x54, 60/2 warp, 16/1 filling, 3.0 yd. per lb.]

FOR MAKING ARMY SHIRTS QM has specified 80x80 percale to make up shortages of 8.2 oz. twill and 2.85 yd. jeans formerly specified for this purpose. The percale is covered by Specification CCC-P-191, but revisions have been made to make the fabric more adaptable. The original specification states the following general requirements: material shall be of only one type and of a grade known commercially as "firsts", fabric shall be free from all avoidable imperfections and defects or blemishes which will affect appearance and serviceability.

Detail requirements for finished cloth, as abstracted from the original specification and revised by QM, are as follows: weave, plain; width, 36 in., with a tolerance of ± ¼ in.; weight, 3.1 oz. per sq. yd., with allowable variations of 2½% minus and 5% plus. Ends and picks per square inch, 85x75, with a minus tolerance of 3 threads per in. and any plus tolerance permitted. Strength by the grab method, not less than 45x30 lb.

Wind-resistant jacket designed to provide maximum protection with minimum bulk, and the fabric from which it is made

In finishing, the material shall be bleached and dyed with vat dyes to an approved shade, the color to show good fastness to light and washing, and the finished material must not contain more than 3% of sizing materials; lightly calendered or uncalendered finishes are acceptable; the fabric shall be fully shrunk so that when submitted to tests described in Federal Specification CCC-T-191 it shall not shrink more than 1% in either direction.

[Although not stated in the specification, the following gray construction is approximately that required to produce a fabric meeting finished specifications: 38 in., 80x80, 36's warp, 44's filling, 5.25 yd. per lb.]

A PROSPECTIVE AMENDMENT to specifications covering dyeing and finishing of tent duck has been made available. This, it is believed, refers to the matter discussed on page 48 of the July issue of TEXTILE WORLD, where it was stated: "All duck for tentage, except shelter-tent goods, at the present time is bought in the gray in anticipation of a new dyeing and finishing specification which is being worked out, but has not (yet) been made official. Dyes probably will be pigment colors, since vat dyes are too expensive for tentage, and sulphur dye is not considered satisfactory."

The amendment, which relates to Specification CCC-D-746, contains the following requirements:

Color, OD, obtained with inert materials, must show good fastness to accelerated weathering test. Use of water-soluble materials in the compound not acceptable. Use of casein, glue, starch, etc., not acceptable. Compound must be free from vegetable and/or oxidizing oils. Maximum allowable weight increase due to treatment, 40%. Finished duck must be practically opaque to light when tested in a dark room using the duck as the cover for a box 1 ft. square, containing a 40-watt lamp. Finished duck must have a satisfactorily pliable handle.

Rayon Warp Sizing Improvements

Can be effected by putting to use the facts disclosed by Research Institute

773 LOOM STOPS due to warp-size failure during a test covering 6,600 loom-hours are proof of the need for improvements in rayon warp sizing. Better sizing and a consequent gain in weaving efficiency can be accomplished by proper choice of sizing compounds and elimination of variables ordinarily encountered in the sizing operation, it is indicated in reports of the cooperative research on warp sizing of continuous-filament rayon carried out under the auspices of the United States Institute for Textile Research.

Certain parts of the rayon warp-sizing reports of particular value to mill managers, superintendents, overseers, chemists, and plant engineers are summarized and interpreted below. Complete reports containing details of test methods, photomicrographic technique, etc., were rendered to those companies which cooperated in financing the study and subsequently appeared in *Textile Research*, the official publication of the Institute.

The best basis for judging the effectiveness of sizing is the number of warp stops caused by balling up at the loom reed. Balling up is not only the largest single factor responsible for warp breaks during weaving; but is also the only cause for warp stops that can be attributed definitely and almost entirely to size failure. Relative effectiveness of warp sizing operations carried out with various sizes and under various conditions can be determined, therefore, by conducting a series of tests to determine the number of warp stops due to balling up at the reed which occur during a given number of loom hours.

The only final and conclusive method for evaluating sizing materials and sizing procedures is to size a warp and weave it in a loom. There is, however, a very simple test which any competent mill man can make and which will enable him to predict fairly closely how well a warp will weave. This test is carried out as follows:

A sample yarn is taken from the warp and broken by hand in the usual way, whereupon the filaments will fly apart at the broken end. One of these filaments is held by the thumb and forefinger of one hand, or by means of forceps if more convenient, and an effort is made to separate the filament from the yarn by pulling the filament back along the yarn away from the broken end which is held by the thumb and forefinger of the other hand. If pieces of filament 2 or 3 in. or more in length can be stripped off the yarn, the warp from which the sample was taken will give much trouble in the loom through balling-up at the reed. If, however, the size prevents pieces of filaments longer than an inch from being stripped off the yarn, the warp will probably weave well.

YARN PROPERTIES affected by sizing materials include strength, cohesion, and stiffness. Breaking strength of rayon yarn may be increased anywhere from 6 to 14% by sizing. This increase is not directly proportional to the percentage of size on the yarn; and marked differences in the type of size do not cause as great variations in breaking strength as might be expected.

Sizes which impart a high degree of cohesion also impart a high degree of stiffness. Cohesion is a desirable property, as it holds the filaments together and causes the yarn to withstand abrasion and repeated flexing. On the other hand, excessive stiffness may be deterimental, causing tear drops, etc. To obtain the most satisfactory sizing, it may be necessary, therefore, to sacrifice some cohesion to prevent undue stiffness. The same sizing material when combined with different softeners gives entirely different results. For example, a starch-glycerine combination gives high cohesion and stiffness, while a starch-sulphonated olive oil combination gives a lower cohesion and stiffness. Hence, proper choice of softeners is as important as proper choice of the sizing material itself.

Gelatins and glues employed in warp sizing viscose rayon tend to coat the yarn as a whole and do not penetrate much into the interior of the yarn. Modified starches tend to penetrate between the filaments and to lie mainly in the interior of the yarn in small irregular masses.

PROPERTIES OF GELATINS AND GLUES which determine their effectiveness for warp-sizing purposes are gel strength, viscosity, moisture content, ash, and acidity. Information on these properties can be obtained from the manufacturers, or tests can be made in the mill laboratory. Usually gel strength is associated with high viscosity. The proper gel strength and viscosity, to produce best results on various warp constructions can be determined only by trials carried out in the individual mill.

Ordinary glue or gelatin contains from 8 to 16% water. Too much water indicates poor keeping quality. Too little water may indicate an overdried product, the strength of which may have been injured.

Ash content of commercial type gelatins averages about 2.3%; ash content of glues is higher. Chlorides and nitrates tend to lower the viscosity and gel strength, whereas sulphates increase them. However, an ash analysis is unnecessary unless the ash content is unusually high.

Gelatins and glues are most stable in solution when the solution is slightly on the acid side(about pH 6.3). Values on the alkaline side tend to promote bacterial putrefaction of the material; excessively acid pH values tend to favor chemical decomposition with corresponding loss in viscosity and gel strength.

The customary tendency in some cases for prepared sizes containing from 35 to 75% moisture to decompose because of the high water content is increased markedly by addition of such materials as sulphonated oils which tend to make the size neutral or even alkaline. This lack of stability is overcome in part by the addition of preservatives. However, some preservatives lead to trouble in finishing by rendering the size less soluble.

In evaluating sizing materials it is essential that they be applied at both the proper concentration and the proper viscosity to deposit on the yarn the amount of size which has been found necessary for good weaving under conditions existing in a particular weave room. The viscosity of a less concentrated mix of high-grade gelatin may be the same as that of a more concentrated mix of a lower-grade gelatin, but experiments indicate that not enough

size will be deposited from the less concentrated mix to protect the warp during weaving. Therefore, to use two sizes of the same concentration only does not necessarily constitute a fair trial. Further, in making comparative sizing tests it is necessary to use the same brand of yarn, as rayon of the same denier made by different producers may take up different amounts of size when sized under identical mill conditions.

VARIABLES encountered in warp sizing —other than those due to the properties of the sizing materials—include concentration, temperature, and volume of the size bath; speed of slasher; pressure on squeeze rolls; and regain of yarn leaving the slasher. Proper control of these conditions results in much more uniform operation and production.

An increase in the concentration of a sizing bath is accompanied by an increase in the amount of size taken up by the yarn. Thus, in one experiment 3.5% of size was taken up by yarn sized in a 100-gal. mix made with $16\frac{1}{4}$ lb. gelatin and $7\frac{1}{2}$ lb. sulphonated oil, while 5.9% of size was taken up from another 100-gal. mix made with $22\frac{1}{4}$ lb. gelatin and 10 lb. sulphonated oil.

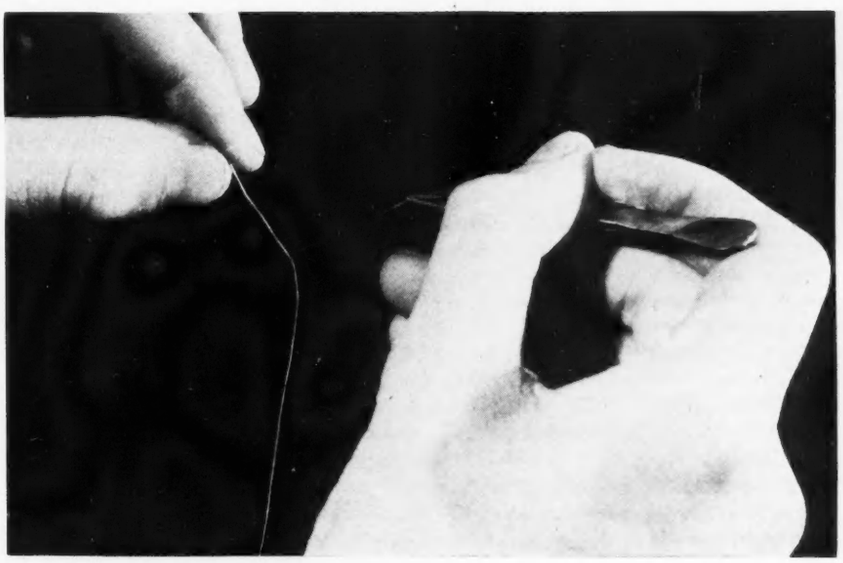
Lowering the temperature of a gelatin size mix results in an increase in the amount of size taken up by the warp. Raising the temperature results in a decrease in viscosity and take up. Automatic control instruments are desirable, therefore, to prevent fluctuations in size-bath temperature and consequent changes in weaving efficiency. Such instruments permit even closer control of temperature when the liquid level of the size also is controlled automatically. In small, shallow size boxes used on some rayon slashers, size level can be controlled more effectively by an electrical-contact type of control than use of devices depending on size temperature. When level and/or temperature controls are installed in a size box, the surface of the control exposed to the size should be composed of a metal as nearly as possible like the lining of the size box; otherwise, corrosion due to electrolytic action may cause serious difficulties.

Increasing slashing speed results in a decrease in amount of size taken up; decreasing the speed results in an increased take up. For example, standard speed of slashing warps of a certain construction is 40 yd. per min., at which speed the amount of size taken up averaged 3%; when the speed was reduced to 20 yd. per min. for experimental purposes, the amount of size taken up was 3.59%.

Increasing or decreasing the number of weights on the compound quetsch lever changes the pressure exerted by the roll and affects the amount of take up, higher pressures resulting in a lower take up, and vice versa.

Use of a blanket on the squeeze roll results in a decrease in take up. In one experiment a warp took up 5.3% size with the usual blanket on the squeeze roll, while take up was reduced to 3.6% with a bare rubber roll. This is a comparatively large change in size content and would markedly affect the weaving properties of the warp. A similar, but less pronounced, change in take up of size occurs gradually as the blanket on a squeeze roll ages.

It should be noted also that the heavier the squeeze, the less are the drying requirements. Thus, when a warp was sized with a heavy squeeze, only the first four out of seven drying cans were necessary to dry the warp to approximately 9% regain. When a lighter squeeze was used on the same construction, six drying cans were necessary to bring the warp to the same regain, using the same steam pressure as before.



A simple test described in text gives a good indication of how well a rayon warp will weave when running through the loom

THE REGAIN at which warps leave the slasher is an important variable in size application. A regain of approximately 10% is most desirable. Higher regains result in more balling up in the loom and cause more warp defects. Lower regains are not economical as they require higher steam pressures and may result in damage to the yarn or insolubility of the size. Under ordinary slashing conditions with manual control, the warps frequently are not dried to a standard or constant regain, one series of experiments showing that warps left the slasher at regains anywhere from 1 to 7%. With automatic controls, 10 warps sized consecutively showed regains varying from 9 to 10.7%, a range of only 1.7%. Automatic control is most effective when there are fewer stops during slashing; hence, warps must be made carefully in order to prevent stops due to crossed ends, cylinder laps, etc., on the slasher.

In the test mentioned above covering 6,600 loom-hours, the 773 loom stops due to warp-size failure accounted for 38% of the total warp stops, or 16% of the total loom stops.

Loss of weaving efficiency due to warp stops during this test period was considered by the weave room to be no greater than usual for the type of fabric woven. A loss in loom efficiency representing 16% of total loom stops from failure of size is of major importance, especially from the standpoint of cost. Further, when a warp is damaged either during the break or during the operation required to repair the break, the damage in many instances shows up as a defect in the gray cloth. The research carried out by the U. S. Institute points the way to better warp sizing, increased loom efficiency, fewer defects, and lower costs. To derive the most benefit from this research, individual mills must first carry out plant trials to determine the type of size and the operating conditions necessary to insure best results on warps employed for various fabric constructions, and then must see that these conditions are maintained by use of proper control methods and instruments.

Air Conditioning for Nylon

Phoenix Hosiery Co. maintains proper temperature and humidity for throwing

By L. H. STARK*
and E. P. CALLANAN**

PROVISION FOR ACCURATE CONTROL of the temperature and humidity in the surrounding space was one of the most important considerations when Phoenix Hosiery Co., Milwaukee, Wis., recently installed new Nylon throwing equipment. It has, of course, been generally recognized that air conditioning is necessary for the successful handling of Nylon, and considerable experimenting has been done to determine the conditions best suited for the purpose.

Du Pont engineers recommended in this instance that equipment be purchased which would maintain 84° dry bulb and 70° wet bulb (50% relative humidity) in the space throughout the year. However, the chief engineer for Phoenix (one of the authors) felt that it would be desirable to have a system which would permit him to change the room conditions over a rather wide range merely by resetting the control instruments.

Two good reasons were advanced for this: first, further experience with Nylon might cause the producers to change their recommendations somewhat; second, with flexible equipment, experiments could be carried on at Phoenix. The problem was further complicated by the fact that only half the Nylon machines were to be installed at the start, making it necessary to have a system which would maintain the desired conditions under a substantially reduced internal load.

Working with the plant engineer, engineers for the air conditioning contractor finally selected equipment which was guaranteed to maintain minimum conditions of 80° dry bulb with 65.5° wet bulb (45% relative humidity), as well as various other combinations within that range. Performance guarantees have been easily met under all load variations encountered to date.

THE AIR CONDITIONING EQUIPMENT consists essentially of a 15-hp. Freon-12 condensing unit, a spray type air conditioner with direct expansion cooling coils, steam reheating coils, and washable type air filters. Both the condensing unit and the fan are equipped with two-speed motors for flexibility of operation. The equipment is located in a penthouse directly above the conditioned area. The air distribution system consists of sheet-metal ducts on the ceiling with Venturiflo air outlets.

Recirculated air is taken back to the unit from one end of the room, through a duct extended to the floor, with openings at various points on the front and sides, from floor to ceiling. Fresh air is brought to the filter chamber by a duct which has been run from the penthouse roof.

A complete system of automatic temperature and humidity control of the pneumatic type was installed, with the master control instruments located in the path of the recirculated air from the conditioned area. The control is so arranged that the refrigeration compressor can be turned on by either a rising humidity or temperature in the space, and operate at full or reduced capacity in accordance with the load on the equipment.

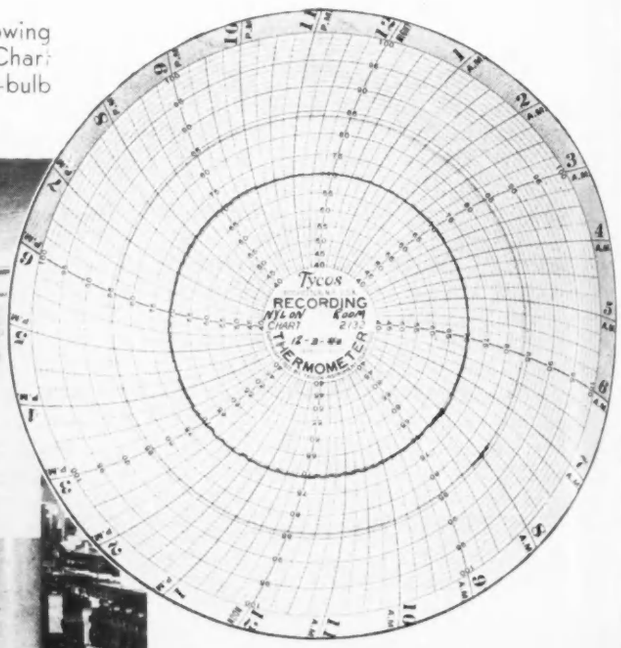
A notable feature of the control system is a modulating-type valve which automatically changes the temperature of the spray water in the unit in accordance with the humidity demand while the refrigeration is on. When the refrigeration is off, the spray water may be heated automatically if that is required.

The temperature in the room is controlled by a thermostat operating the refrigeration compressor and the steam supply to a heating coil.

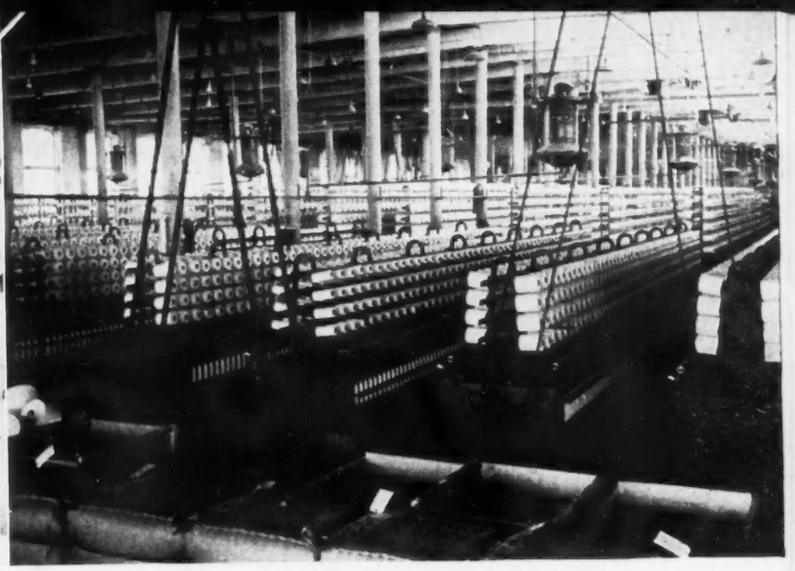
A system of automatic dampers is fitted into the control sequence so that when the outside air temperature is within a certain range, it is used for cooling, instead of the refrigeration unit. The saving in hours of operation of the compressor motor by this means is considerable in the Milwaukee area.

*Chief Engineer, Phoenix Hosiery Co.
**Air Conditioning Engineer, Vilter Mfg. Co.

(Below) Air conditioning system recently installed in Nylon throwing department at Phoenix Hosiery Co., by Vilter Mfg. Co.: (Right) Chart from recording thermometer shows that both dry-bulb and wet-bulb temperatures are held under close control



Looking through huge creel of chain warper



The new twisters are installed in this room

Shirt-Sleeve Plant Management

And modern machinery have increased production 13% at Elk Cotton Mills

IT HAD BEEN A HOT, DUSTY DAY coming up from Alabama, and we were mighty glad to drive under the canopy of shade trees which form a roof over the office of Elk Cotton Mills. This yarn mill hums merrily just outside of Fayetteville, Tenn., over the mountains from Chattanooga. Inside the little office building a young man sat beneath an electric fan, working at a desk. He greeted us cordially, and we learned that Ernest Rees, president and manager of the company, was absent. Roy Rees, his brother and assistant, would see us.

Mr. Rees told us about Elk Cotton Mills, which is one of the oldest and most successful in Tennessee. His father acquired it in the early 1900's, and the family has operated it ever since. From 1901 to 1923 the plant grew by progressive steps from 3,600 spindles to its present 20,000. Most of the present spindles are the latest long-draft models. The company not only showed steady growth but, better still, always managed to earn a profit, even during the worst of the depression. Since few mills can boast of such a record, we asked how it was done.

"There are several factors which enter into our management policy," Mr. Rees replied. "In the first place we have developed a good product and we stick to it. Practically the only count of yarn we make is 30s—with two twists, 18 and 23 turns. This yarn goes into upholstery, insulation, lace, narrow fabrics, etc. Our own selling house, Rees & Co., markets this for us.

"We always have believed in modernization. I don't know just how much in dollars and cents this policy has meant to us, but I do know that we have increased our total production 13% since we put in our new equipment. A few years ago we were lucky to produce 24,000 lb. of yarn in 57 hr.; today we average 60,000 lb. for a full week. Overhead is another important item. We keep ours down."

"It is unnecessary to point out," Mr. Rees went on, "that we have a low labor turnover here. Training new help costs a lot of money. We find that in the long run it is both wiser and cheaper to pay prevailing wages, or higher. Today we not only meet all requirements of the Wage-Hour Law, but also pay the full job-rate to learners."

About that time Ernest Rees, Jr., grandson of the founder of the present company, came into the office, and a little later he and Roy Rees showed us through the mill itself.

The opening room is equipped with a Whitin one-process machine, and the picker room contains two lines of one-process H & B equipment, with distributor. Next, there are 60 Whitin cards, which number may be increased eventually. Drawing is two-process. One- two- and three-process drawing were tried out, and the two-process method was decided upon for the particular type of work carried out in this mill.

The roving department has fourteen Saco-Lowell long-draft frames of 136 deliveries each. This was one of the first installations of these machines in the South, which indicates that the mill is always on the alert for important new developments in machinery.

Of the 20,000 spinning spindles, 15,000 are new Saco-Lowell long-draft of the latest type. These new frames are all on filling; combination winds are made on the older frames.

Twisting and winding are extremely important in a mill of this kind. At the time of our visit eighteen new twisters, half Saco-Lowell and half Whitin, had just been installed as part of a program to replace 29 old twisters. Five new Foster 102 winders, one new Foster 101 winder and one new Universal winder have also been installed recently. Yarn is ordinarily put up on cones and perforated tubes, in skeins, and in warp form. A large part of the production is run through a big Cocker warper which operates at 400 yd. per min. on ball warp and 100 yd. per min. on chain warp.

All machinery in the plant is on one floor and is so laid out that there is a continuous flow of stock in process.

Elk Cotton Mills is not a fancy outfit, but there is something solid and appealing about its long, low lines and business-like equipment. Also appealing is the fact that the Rees family believes so strongly in modernization and "shirt-sleeve" management—two factors which have contributed largely to the company's enviable record.

Less Waste In Worsted Spinning

Means increased profit-opportunity for mills, and improved quality of yarns

By JOHN C. LOWE
Lowell Textile Institute

This is the concluding installment of a two-part article; the first installment, dealing with waste in operations prior to drawing, appeared in the May issue of TEXTILE WORLD.

* * *

DRAWING AND SPINNING waste allowances vary in worsted yarn mills. In general, for every 100 lb. of finished yarn required, from 107 to 110 lb. of top are allowed. From 3 to 5% waste may be made in both drawing and spinning. Drawing waste will be principally waste ends, piecing lumps, and laps. In addition, rubber waste and flyings represent a fluctuating portion of the total waste. Spinning waste consists of laps, hard ends, and sweepings or flyings. Some mills do not criticize 2 to 2½% laps and hard waste. Flyings may reach as high as 2½% for some tops. In twisting ½ of 1% waste is reasonable.

In English drawing no waste is supposed to be made on the gilling operations. Many mills work in any that is made, behind the can gill box. On drawing boxes, the amount of waste will depend upon the system followed. Good practice demands that all piecing lumps be taken out in front and that, if a thin place results, the end be broken. On the fine end no piecings are allowed to pass. This practice is sound; it results in better roving, better spins, and fewer yarn defects.

Critics of this method point to the waste made and to the loss in production due to stoppages. They claim that piecings can be made which do not have to be trimmed, therefore stoppage can be avoided and waste saved. Actually much uneven roving results, slubs are increased, and yarn defects are more evident. In one demonstration of the latter system witnessed by the author, not once did the most expert operative in the mill make a piecing which drafted evenly. The effect of such piecings was cumulative. Slubs were so numerous behind the reducer that the girls were offered a bonus to detect and remove them.

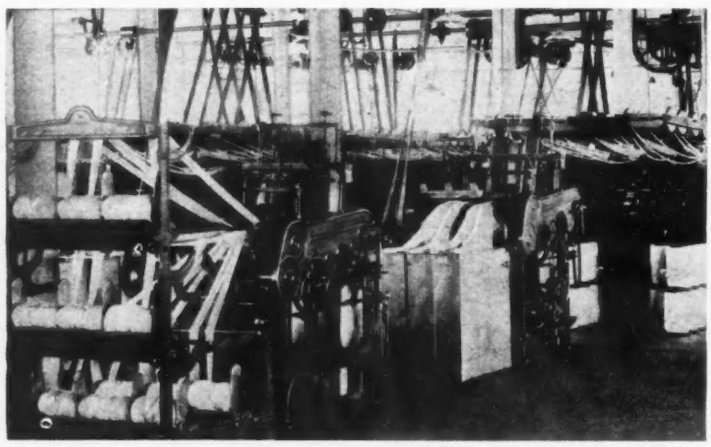
Everything should be done to reduce piecings to a minimum. Matched aprons and uniform pressures on the gill boxes will result in sets behind the drawing box that will run out together and so avoid "evening up" the ends before a new set goes in. Sets behind the box should make so many full bobbins in front. This method is especially valuable at the weigh box to prevent creeling in the middle of a doff. If followed through the method will reduce waste, decrease the number of broken ends in the sets on the fine end, and so increase production up to 2% on reducers and rovers. In one test run on a coarse set, stoppages for broken ends equalled 5% at the cone rovers and 4.8% on the cone reducers. This emphasizes the double loss resulting when waste is made by broken ends. Soft drag, tight bobbins, warped bobbin heads, and too many wraps of the end around flyer arm are all prolific causes of broken ends.

A frequent cause of much waste is "single." In open drawing, if drag is as it should be, "single" will not wind. The end breaks in front and the chances are that it will soon be detected. "Single," if allowed to pass, will result not only in variation of count but also will affect the spin.

In cone drawing "single" will always wind. Slubbing stop motions are provided which stop the frame before the end runs through the back rolls. If laps and slubbing waste can be reduced 1%, there may easily be a 2% gain in production at no increase in labor cost.

Another large item of waste is sweepings. This consists of fibers thrown out in processing, and includes rubber waste. It is dependent upon many factors; viz., percentage of short fiber and of oil in tops, temperature of machines, relative humidity, draft, and speed of machines. 15% moisture and 3½% oil in the end from can gill box, 70 to 75° F. room temperature, 55 to 60% R.H., machines warm to the touch, and reasonable speeds will keep fly to a minimum. Excess moisture in stock may cause carrier laps on the heavy drawing resulting in "single," much waste, damaged carriers, and occasionally a grooved top-front-roll cover. Rubber waste increases when static conditions are present.

IN FRENCH DRAWING, waste ends from every operation are called remnants. These are carefully rolled and kept clean. Later they are gilled into a remnant top which is worked in on the first operation. Short pieces, laps, and other clean waste are collected and worked in either in scouring or carding. Most remnants results from "single." The type of creel used has an influence on the amount of single made on drawing boxes. In order to save floor space, some mills have adopted vertical-drag creels which are set fairly close to the feed rolls. The operative can not see the lower rows of bobbins in the creel from



Principal causes of drawing waste are waste ends, piecing lumps, and laps

the front of the machine, with the result that ends run out unnoticed. If a frame is running at 25 yd. per min. and bringing off a 3,000 grain end, it will not take long to make an excessive amount of waste when "single" is allowed to run.

The writer has seen over 1% waste made in first gilling because stock from the backwasher was too moist.

Faulty front piecings and poor condensation at the previous operation may be causes of broken ends in the creel. The numerous piecings made in French drawing are a disadvantage. Good piecings are necessary. On the heavy end a poor piecing may not draft at the porcupine, the end breaking and the

The percentage of sweepings may, in some mills, be nearly equal to that of clean waste

lump passing through chokes at the rub apron, thus forming a lap. If not seen in time the apron may be damaged.

Good piecings will not draft if porcupines are set too close. Porcupine laps result from damaged pins, fouled pins, and cold porcupines. Laps on the bottom front roll can be caused by faulty alignment of the bottom-front-roll brushes. These brushes should never be interchanged, and they should be kept clean. Brush waste and rubber waste are directly influenced by moisture content of stock, relative humidity, and machine temperature.

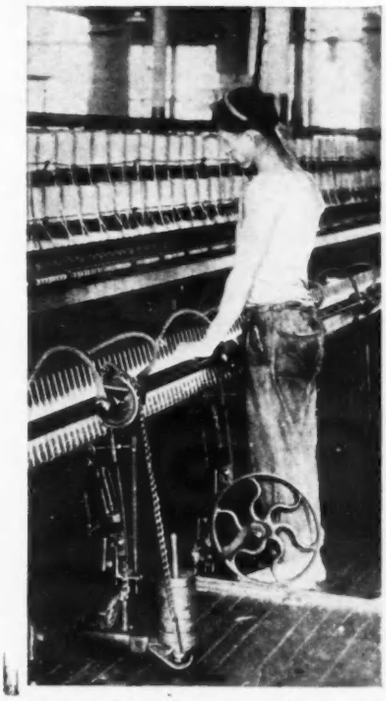
Ideal conditions exist when the stock loses moisture slowly to an atmosphere regulated to 75° F. and 75% relative humidity, with machines warm to the touch. Never allow frames to become cold over the week-end—air can be heated quickly but machines can not. Much waste, defective work, and rough roving results until machines reach correct temperature. Proper settings, reasonable speeds, good piecings, cleanliness, porcupines in perfect condition, warm machines, correct moisture in both stock and atmosphere, are all enemies of excessive waste, when supported by well trained and competent operatives.

SPINNING WASTE is of three types; namely, soft, hard, and sweepings. Soft waste includes laps and roving waste, although in English spinning the latter may be kept separate. Hard waste consists of hard ends and all yarn waste. Sweepings comprise flyboard waste and all flyings from machine and floor.

In most mills, spinning waste is too high. In the English system, percentage of sweeping may nearly equal that of clean waste. In French spinning, sweepings are much less. The amount of hard ends depends upon the spin and the spinner. Given good operatives and frames in excellent condition, excessive waste is due either to a poor spin or to too many spindles per operative, or both. Important factors in keeping spinning waste at a minimum are clean roving pegs, properly set roving guides, clean rolls and carriers, correct roll pressures back and front, fly boards or lappets properly set, perfect pot eyes, clean and well-set separators, smooth rings or caps, and correct drag conditions. When the same end keeps breaking down there is a defect to be discovered and remedied. Operatives should be so trained that the immediate attention of the fixer or section hand is called to such ends.

What has been said previously regarding the causes of high percentage of flying applies in spinning with equal force. Amount of sweepings depends upon selection of top, running conditions, and treatment during drawing, especially on the English system. If the percentage and kind of oil used are not satisfactory, the spin will suffer and wastes will increase. Faulty blends of top are also frequent sources of excessive spinning waste when a poor spin results. In addition, production may be lowered because speeds have to be reduced.

Defective bobbins cause much waste. In cap spinning the builder motion and supplementary mechanism should always be in proper adjustment. Hard ends and lap waste can be reduced when it is insisted that section hands keep their frames in good mechanical condition and provision is made for cleanliness of the drafting and winding mechanism. An efficient section hand can so reduce lap waste and hard ends that a weekly saving of $10 to $40 will result from his section. Each pound of waste in spinning may represent a loss, on



Amount of hard ends made depends upon the spin and the spinner

material alone, of 50c. To this must be added labor cost and overhead. An alert second hand can soon make a name for himself through reduction of waste.

WASTE IN TWISTING consists mainly of hard ends, with a small amount of flyings. When twisting direct from bobbins, ½% waste is reasonable. Waste is at a minimum when a set can be started and run out without any breakages in back or in front of the delivery rolls. Causes of breakages in the creel include defective spinning bobbins, excessive tension, and weak yarn. Breakages in front of delivery rolls result from excess tension, not enough tension, slubs, and carelessness of operatives. Remedies are obvious: keep all parts clean; lubricate thoroughly; aim at uniformity in all settings for tension, trap motions, spindles, and rings; instruct operatives to notify section hands when breakages of ends are excessive; and insist upon cooperation of the spinning room in production of good packages on perfect bobbins.

To recapitulate, it has been shown in this and the preceding installment that the amount of waste which is made during the various processes of worsted yarn manufacture is dependent upon the suitability of the wool for the required yarn, the ability of the superintendent and his overseers, the skill and training of the operatives—especially the section hands, and the condition of the equipment. In most mills, the amount of waste made can and should be reduced.

Rayon in Full-Fashioned Hosiery

Correct knitting methods essential to production of strong and elastic welts

By WILLIAM T. LEGGIS

USE OF RAYON was shunned for many years by most full-fashioned hosiery manufacturers because they knew of rayon's characteristic of losing approximately one-half its strength when wet. This fact alone was sufficient for them to refuse even to consider the possibility of using rayon in any part of full-fashioned hosiery. It remained for a few manufacturers to pioneer in the use of rayon in full-fashioned constructions. These manufacturers realized, after considerable experimentation, that rayon could be used in certain parts of full-fashioned hosiery, and still result in a serviceable stocking. The work of these pioneers will be of great value to the hosiery industry now that it is faced with the necessity of changing over from silk to rayon and other fibers.

The object of the experiments mentioned above was to determine where rayon could advantageously be used to effect a material saving in cost and still result in a satisfactory marketable product. It was found that the welt offered the greatest possibility of savings. In addition, rayon was often substituted for silk in the heel and foot reinforcements. As a result of foot perspiration, rayon reinforcements are likely to, and do, wear out comparatively quickly. However, in spite of this limitation, rayon reinforcements in the heel and foot have remained as acceptable standard constructions in rayon-welt, silk full-fashioned hosiery.

Many problems arose when attempts were first made to use rayon in the welt and reinforcements of silk hosiery. It was discovered, however, that rayon could be used, but that it had to be used intelligently, with the properties of rayon always considered.

How does rayon compare with silk? Ordinary viscose rayons have a tenacity of approximately 2 grams per denier, as compared with approximately 3.4 grams per denier for silk. These yarns have an elongation of approximately 10%, as compared with approximately 18% for silk. Therefore, in order for a rayon yarn to have approximately the same strength as a silk yarn, it must be approximately 70% heavier in denierage than the silk yarn. In other words, for a rayon welt to have the same dry strength as a 6-thread silk welt, a rayon yarn of 120-den. must be used in constructing the welt. This figure is arrived at as follows: A 6-thread silk yarn boiled off is approximately 70-den.; a rayon of equivalent dry strength is 170 × 70, or 119 den. The comparative strength of viscose rayon and silk yarns is shown in Table I, and result of tests made on a Mullen tester of silk welts and rayon welts are shown in Table II.

A good many manufacturers felt that 120-den. rayon for the welt of a 3-thread stocking, resulted in too bulky a welt, and they chose to use 100-den. rayon.

TABLE I. Comparative tenacity of rayon and silk yarns

6-thread silk (boiled off)	240 grams
100-den. (viscose type)	200 grams
120-den. (viscose type)	240 grams

In most cases, the choice of rayon denier was made without regard as to the final strength of the welt. In the opinion of the writer, the use of 100-den. rayons, with the resultant sacrifice in welt strength, in order to secure a 20% lighter welt fabric, is inadvisable.

KNITTING of rayon welts must be undertaken in an intelligent manner; otherwise, an acceptable, serviceable welt cannot be produced. Rayon does not possess the elastic qualities of silk. Therefore, this lack of elasticity must be compensated for in some manner. The way to compensate for this lack of elasticity in the yarn is to knit a very elastic fabric. This elastic fabric can be produced in two ways. First, the welt fabric can be knitted very loosely, so that, after dyeing, the welt can be stretched to the minimum requirements with the normal stretching force. However, knitting welts too loosely on full-fashioned machines results in sleazy fabrics; and, especially on rayon welts, presents a boarding problem after dyeing. The welts hang too loosely on the forms, and it becomes impossible to straighten out the welts in a presentable, commercially acceptable manner.

Use of loose courses at regular intervals throughout the welt is the second method, and the one most generally adopted to increase the stretch of rayon welts. The loose courses may be spaced every third, fourth, fifth, or as high as every tenth course. Naturally the more loose courses, more closely spaced, the greater is the welt stretch. Use of loose courses permits a tighter stitch to be used between the loose courses, thus avoiding sleazy welt fabric.

It is a fact that loose courses actually weaken the strength of the welt; therefore, it is imperative that the size of the loose course must be only large enough to secure the desired minimum stretch. Larger loose courses than needed only weaken the welt fabric and

WITH THE BAN on civilian use of silk, the hosiery industry faces the necessity of employing rayon, cotton, and Nylon in the manufacture of women's full-fashioned hosiery. At the outset, most mills will undoubtedly hold their stocks of thrown silk until they receive shipments of rayon and cotton yarn, and will then use these materials for knitting the welts and feet, making only the legs from silk. One of the major problems which will be encountered will be to obtain satisfactory rayon welts. Filled with practical information on use of rayon in full-fashioned hosiery, this timely article has been rushed into print and substituted for one on silk throwing originally scheduled for this issue.

greatly increase the possibility of garter punctures. In other words, the rayon welt fabric should be knitted as compactly as possible consistent with minimum acceptable welt stretch. Any excess welt stretch can only be interpreted as having resulted from a sacrifice in welt strength.

Although use of proper loose courses in the double welt is desirable in order to secure required stretch, the use of loose courses in the lower welt or shadow welt is unnecessary if the fabric is knitted properly. As a matter of fact, use of loose courses in the shadow welt is detrimental and serves no good purpose. Sufficient stretch can be produced in the single-fabric shadow welt with straight knitting. Use of loose courses greatly weakens the shadow welt and increases the likelihood of garter punctures and tears.

To illustrate how some manufacturers have blindly designed their rayon welts the following examples are given of constructions which have been put on the market.

Example 1: Welt constructed of 100-den. rayon, with no loose courses in the upper or double welt. However, in the lower welt large loose courses are inserted every third or fourth course. It is true that this construction looks well to the eye, but the construction is basically wrong in all respects. First, the 100-den. rayon is too light to yield desired strength. Second, the lack of loose courses in the double welt will result in a welt having insufficient stretch. Third, the loose courses in the lower welt only serve to weaken this portion of the welt.

Example 2: Another basically wrong rayon welt construction met with quite frequently in the trade is a one containing either a jaquard lace or a successive picot lace in the underwelt. These lace constructions do lend a pleasing appearance, but the weakening effect of the lace is considerable—too great to be tolerated in a rayon underwelt.

Table III illustrates the weakening effect of a lace in the underwelt of rayon welts. From this table it can be seen that the lace decreases the strength of a 100-den. rayon fabric from 55 lb. per sq. in. Mullen to 39 lb. per sq. in., or a loss in strength of approximately 30%. Table III also illustrates the decrease in strength in 100-den. rayon underwelt fabric due to a single picot. Fabric strength decreases from 55 lb. per sq. in. to 46 lb. per sq. in., or a decrease in strength of approximately 16%.

Knitters face new problems in using rayon in full-fashioned hosiery

Table IV illustrates the effect of loose course size on the strength of the rayon fabric underwelt. This table shows that increasing the size of the loose course 50%, decreases the underwelt fabric strength approximately 10% additional.

SEVERAL PROBLEMS are encountered in dyeing full-fashioned hosiery containing rayon in the welt and reinforcements. In the first place, proper selection of dye nets is quite important to prevent excessive tangling. Next, proper selection of dyes must be made to secure fast, level dyeings. Cation-active finishing materials are helpful, especially if cuprammonium rayon is used.

From the consumer angle, rayon welt constructions have an objectionable feature not mentioned previously. That is, rayon welts dry considerably slower than silk welts. Stockings are usually rinsed each evening, and the wearer expects them to be completely dry in the morning. Rayon welts, if thoroughly wet out will not dry completely overnight during very humid weather. The way to overcome this objectionable feature is to finish this type of hosiery with a much greater percentage of splash-proofing compound than is normally used on all-silk hosiery. This treatment prevents the welts from wetting out thoroughly during rinsing, and consequently minimizes the drying problem during summer months.

Special precautions must be observed in the handling of the damp dyed stockings in the boarding department. In the wet condition, the welts are comparatively weak, and any excessive strain during boarding will rupture the rayon fabric. Tangled hose must be carefully straightened without any excessive tension. Excessive pulling down of welts when the hose is placed on drying forms is likely to rupture the welt at junction of welt and main boot silk.

TABLE II. Mullen burst tests: welts 42-gage

6-thread silk	140 lb. per sq. in.
120-den. rayon	120 lb. per sq. in.
100-den. rayon	95 lb. per sq. in.

TABLE III. Mullen burst tests: underwelt fabric

6-thread silk	70 lb. per sq. in.
6-thread silk with 1 picot	60 lb. per sq. in.
6-thread silk with lace	47 lb. per sq. in.
120-den. rayon	65 lb. per sq. in.
120-den. rayon: 1 picot	55 lb. per sq. in.
120-den. rayon: lace	43 lb. per sq. in.
100-den. rayon	55 lb. per sq. in.
100-den. rayon: 1 picot	46 lb. per sq. in.
100-den. rayon: lace	39 lb. per sq. in.

TABLE IV. Mullen test: effect of loose course size on strength of underwelt

120-den. single fabric	65 lb. per sq. in.
120-den. normal loose course	59 lb. per sq. in.
120-den. 50% larger loose course	53 lb. per sq. in.

Central Research Laboratory

Unique organization serves all units of United Merchants & Manufacturers, Inc.

UNIQUE in many respects is the central technical department and laboratory recently established by United Merchants & Manufacturers, Inc., through its management corporation. It is unique in location, in personnel, and in aims; only in equipment is it similar to the conventional textile laboratory.

Who would expect to find a textile laboratory on the top floor of a building in the heart of the famous, or infamous, Hell's Kitchen section of New York City? Yet that is where it is, at 601 West 26th St., on the 19th floor of the Starrett Lehigh Bldg. Who would expect the staff of a textile research laboratory to be comprised of two mechanical engineers, an electrical engineer, a metallurgist, three chemical engineers, and four chemists, a number of them without previous training or experience in textile work? But that is the nucleus on which the staff is being built. Who would expect the primary aim of a research laboratory to be such a down-to-earth matter as increasing plant efficiency? Well, that's the aim of this one.

To understand the function of the laboratory, it is necessary first to have an idea of the units it serves. United Merchants & Manufacturers, Inc., through its management corporation, United Merchants & Manufacturers Management Corp., owns and operates several mills, including Ashland Corp. and Fisk Mills, Jewett City, Conn.; Midland Print Works, United Rayon Mills, and Davis Screen Printing Plant, Fall River, Mass.; Clearwater Mfg. Co. and Seminole Mills, Clearwater, S. C.; Associated Textiles of Canada, Louisville and Coaticook, Quebec; and Sundamtex, Buenos Aires, Argentina. Associated selling agents are Cohn Hall Marx Co., Seneca Textile Corp., and United Merchants Sales Corp. The company does its own factoring through United Factors. Associated with the Seneca Textile Corp. are Arkwright Corp. and Arkwright Finishing Plant, Fall River, Mass.; and Bath (S. C.) Mills.

The company manufactures a wide variety of cotton, rayon, and silk fabrics for apparel, household, and industrial uses; and converts various types of fabrics not made in its own mills.

Early this year executives of the company decided to establish a central research laboratory to carry out work of types which the various mill laboratories are not set up to do. As director of research, the company wanted a man of broad experience, but one not trammeled by the traditions of the textile industry. Dr. Charles L. Mantell, a well-known consulting engineer, inventor, and author of scientific and technical books, was selected for the post. Dr. Mantell began immediately to build up a research staff and to equip the laboratory.

THE LABORATORY itself is equipped with the most modern apparatus for carrying out photomicrographic, physical, and chemical tests and research. The research work is of the type known as "applied" research, as contrasted with "fundamental" research, and is of such a nature that members of the staff spend from 30 to 60% of their time in the company's mills working on actual plant problems.

The work embraces everything relating to improvement of plant efficiency and products. A few of the projects started since the laboratory was established in the spring are: development of better machine parts for jacquard looms, survey of lighting and air-conditioning facilities in all plants, disposal of trade waste from finishing plants, improvement of water purification methods, increasing power-plant efficiency, raising power factor, application of automatic control instruments, standardization of tinting colors, better utilization of dyes, development of size for synthetic fibers, improvement of rayon warp-sizing processes, improvement of flock printing, development of a permanent finish for rayon fabrics, and study of causes and prevention of fabric defects. Dr. Mantell is thoroughly alive to the potentialities of Nylon, Vinyon, ethyl cellulose, casein, and other new synthetic fibers; and development work on the use of these fibers—particularly in industrial fabrics—is emphasized.

The director of research and members of his staff cooperate closely with the plant managers and other company executives. As a result, while much of the work of the research department is initiated in that department, a large amount of it is devoted to solution of problems put up to it by plant managers or other company executives. Demands are growing so rapidly that it is necessary steadily to increase the size of the staff, and to expand considerably.

View in one section of central research laboratory of United Merchants & Manufacturers, Inc.; leaning on desk and conferring with one of his staff is Dr. Charles L. Mantell, director of research

Preventing Improper Combing

Remedies for some of the more frequent causes of poor quality in combed work

A COMMON CAUSE of bad work on combers is "jerk-ins"—bunches of fiber that are pulled through the nippers by the detaching rolls before the needles of the half lap have combed them. Such bunches of fiber, when they get into the yarn, show up as nubs, neps, gouts, and other uneven places because the short fibers are more or less uncontrollable in the various drafting processes and virtually refuse to be drawn into an even strand of yarn.

The cause of jerk-ins usually lies in the preparation of the comber lap; heavy places in the lap momentarily overload its combing mechanism and a bunch of uncombed fibers is pulled through the rolls. The nippers are unable to hold the heavy bunches of fibers and the detaching rolls pull the fibers through. The source of such unevenness in laps can lie in any of the machines prior to the comber, but generally can be found on either the sliver- or the ribbon-lapper.

Incorrect roll settings, causing uneven drafting on sliver and ribbon lappers, are a source of uneven laps. When feeding 50- to 60-grain card sliver into sliver lappers, roll settings allowing ¼ in. front to middle and ⅜ in. middle to back usually are correct, and in most cases will yield an even product. On ribbon lappers, settings above staple lengths of ⅛ in. front to middle, ¼ in. middle to third, and ⅜ in. third to back have given good results and produced even laps.

A further cause of jerk-ins is the dirt and wax that accumulates on the drafting rolls of the lappers, filling the flutes and forming edges that cut the fibers. The short fibers resulting from the cuts in the lap tend to jerk through the nipper of the comber and later to form uneven places in the yarn. As a preventive measure, it is wise to clean the rolls at least weekly, though there are differences in kinds and types of cotton that may allow less frequent or compel more frequent cleaning.

If jerk-ins persist after these remedies have been applied, it is possible that the comber lap is too heavy with respect to the staple length of the cotton. The longer the staple, the lighter the lap must be. Satisfactory results are obtained with a 625-grain lap, producing 55-grain combed sliver, when running 1⅜-in. Egyptian Sak cotton. In general, Pima requires a lap approximately the same weight as Sak of equal staple length.

Comber rolls must be kept correctly set, in proper alignment, and clean, if good work is to result

However, different mills working under different conditions will obtain best results with other organizations. The following organizations are used by some mills on Pima in the spinning of fine yarns: 1⅜-in. staple, 43-grain card sliver, 510-grain sliver lap, 440-grain ribbon lap, and 50-grain combed sliver; 1⅜-in. staple, 34-grain card sliver, 380-grain sliver lap, 380-grain ribbon lap, and 49-grain combed sliver. On 1⅛-in. Delta cotton, the following organization has given good results: 43-grain card sliver, 510-grain sliver lap, 440-grain ribbon lap, and 50-grain comber sliver.

LAPPING-UP on the detaching rolls is another frequent cause of headaches to the comber operator. Rough rolls and cracked varnish on rolls are two causes that are easily detectable, but there is a third which is much less apparent. The covering on the back roll becomes loose on the cushion layer, and this looseness creates a tendency for the fibers to lap up. Recovering is the only cure for a loose covering; weekly varnishing will aid in preventing rough places.

Excessive humidity results in sticky rolls and tends to cause fibers to lap up more frequently than otherwise. On the other hand, static electricity resulting from deficient humidity will have the same effect. A relative humidity of 55% has proved to be adequate to dispel static and yet not so much as to make rolls sticky.

Failure of operatives satisfactorily to clean the arbors of the top detaching rolls, particularly the back top roll, is another cause of lapping that frequently is overlooked. Lint should not be allowed to accumulate in, under, or around the shells or bearings of the machines.

Comber webs sometimes are thinner on one side than on the other. The cause is misalignment of the back top detaching roll. When the roll slips so that one end is too far from the comber cylinder, and does not pick up the web as it should, part of the web from this side of the roll goes into the waste.

Short piecings can be the result of two causes in the headend. A worn clutch roller permits the detaching rollers to make a shorter back turn and thus not make a full piece-up, and a worn detaching cam has the same effect by shortening the stroke of the rack.

When neps are made prior to combing, a properly set-up comber will remove them. In the elimination of neps, there are three points of attack—the half lap, the fan, and the bottom back roll. The half lap should be cleaned, or stripped, at least two or three times a week. The air stream from the fan sometimes works improperly and does not do its job of blowing waste fibers away from the stripper. Neps caused by the bottom back roll are the result of lap ups on the roll which are undiscovered or are carelessly allowed to continue running. A clean back roll is a necessity if the web of cotton is to be kept free from neps at all times.

Cost Manual for Yarn Processing

Allocation of expenses to process and cost centers; schedules of expense

By FORREST J. FALES
Cost Engineer, Glenlyon Print Works

Previous articles in this short series, which began in our May issue, described the setting up of processing and cost centers, and the use of stores-issue and time cards in compiling and allocating expense.

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VII. Process or cost-center costs (*continued*). The schedules of expense mentioned previously are as follows:

SCHEDULE I. Basis of floor area of processes, cost centers, and auxiliary departments. To be used as the basis for the distribution of insurance, taxes, interest, and depreciation on buildings valuation. Multiply the number representing square feet by the determined factor to obtain the amount of expense to be charged to each process, cost center, and auxiliary department.

SCHEDULE II.—Basis of equipment valuation of processes, cost centers, and auxiliary departments. To be used as the basis for the distribution of insurance, taxes, interest, and depreciation on equipment valuation. Multiply the equipment value by the determined rate to obtain the amount of expense to be charged to each process, cost center, and auxiliary department.

When the distributions of Schedules I and II have been made, together with the other expense items described above, the total cost of auxiliary or service departments will have been completed and, in turn, this expense will be distributed through the following schedules.

SCHEDULE III. Basis of direct labor of processes and cost centers. To be used as the basis for the distribution of the following items of expense: (a) APG—Watchmen and labor bureau; and (b) Administrative Part 2. Multiply the direct labor expense of each process and cost center by the determined rate to obtain the amount of above items to be charged to each.

SCHEDULE IV. Basis of stores expense of processes and cost centers. To be used as the basis for the distribution of the following items of expense: (a) Administrative Part 3; (b) AS—Expense of maintaining stores department; and (c) Interest on stores inventory. Multiply the stores expense of processes and cost centers by the determined rate to obtain the amount of above items to be charged to each one.

SCHEDULE V. Basis of repair expense of processes and cost centers. To be used as the basis for the distribution of the following item of expense: AR—Mechanical fixed expense. Multiply the repair expense of processes and cost centers by the determined rate to obtain the amount of above expense to be charged to each.

SCHEDULE VI.—Basis of manufacturing expense of processes and cost centers. To be used as the basis for the distribution of the following items of expense: (a) Amount of claims paid: (b) Administrative Part 1; (c) AP—Planning office; (d) AM—Main office; and (e) AY—Yard expense. Multiply the manufacturing expense of processes and cost centers by the determined rate to obtain the amount of above items to be charged to each.

SCHEDULE VII. Basis of equipment valuation of processes and cost centers.

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TABLE V. Allocation or distribution of expense to process and cost centers

EXPENSE ITEM	DISTRIBUTION BASIS	CHARGED AS	
		BASE	BURDEN
Direct labor	Directly (Sect. V)	Yes	
Miscellaneous labor	Direct labor (Sect. V)	Yes	
Supply labor	Directly or lb. handled (Sect. V)	Yes	
Repair work on yarn	Directly or lb. handled (Sect. V)	Yes	
Sweeping, scrubbing, cleaning	Square foot area (Sect. V)	Yes	
Direct stores	Directly (Sect. V)	Yes	
Drugs and color	Directly (Sect. V)	Yes	
Miscellaneous stores	Direct labor (Sect. V)	Yes	
Repairs	Directly (Sect. V)	Yes	
Claims Paid	Manufacturing expense (Sched. VI)	Yes	
Freight; Expressage	Directly (Sched. XII)	Yes	
Foremen; Clerks	Direct labor (Sect. V)		Yes
General Supervision	Direct labor (Sect. V)		Yes
Insurance: Buildings value	Square foot area (Sched. I)		Yes
Taxes: Buildings value	Square foot area (Sched. I)		Yes
Interest: Buildings value	Square foot area (Sched. I)		Yes
Depreciation: Buildings value	Square foot area (Sched. I)		Yes
Insurance: Equipment value	Equipment valuation (Sched. II)		Yes
Taxes: Equipment value	Equipment valuation (Sched.II)		Yes
Interest: Equipment value	Equipment valuation (Sched. II)		Yes
Depreciation: Equipment value	Equipment valuation (Sched. II)		Yes
Interest on stores inventory	Value of stores used (Sched. II)		Yes
Interest on fuel inventory	Directly to AHS (Sched. IX)		Yes
Administrative expense			
Part 1	Manufacturing expense (Sched. VI)		Yes
General expense			
State tax			
Selling expense			
Traveling expense			
Advertising			
Officers' Salaries			
Part 2	Labor expense (Sched. III)		Yes
Employees' insurance			
Workmen's compensation			
Civic expenses or welfare			
Part 3	Value of stores used (Sched. IV)		Yes
Stores price adjustment			
Loss and breakage in stores			
Stores inventory adjustment			
Part 4	Equipment valuation (Sched. VII)		Yes
Plant replacement to operating			
Auxiliary and other expenses	(Built up from expenses enumerated above; distributed as shown below)		
AC—Chemical laboratory	Processes serviced — lb. yarn (Sched. XI)	Yes	Yes
AG—Watchmen and labor bureau	Labor expense (Sched. III)	Yes	Yes
AHP—Power and light	K. W. H. usage (Sched. X)	Yes	Yes
AHS—Steam	Pounds of steam used (Sched. IX)	Yes	Yes
AL—Trucking	Receiving and shipping—lb. yarn (Sched. XII)	Yes	Yes
AP—Planning office	Manufacturing expense (Sched. VI)		Yes
AM—Main office	Manufacturing expense (Sched. VI)		Yes
AS—Stores department	Value of stores used (Sched. IV)	Yes	Yes
ASC—Color stores department	Dyeing processes—lb. (Sched. XIII)	Yes	Yes
AY—Yard	Manufacturing expense (Sched. VI)	Yes	Yes
AW—Water	Gallons water used (Sched. VIII)	Yes	Yes
AR			
ARS—Mechanical fixed	Repair expense (Sched. V)		Yes

To be used as the basis for all distribution of the following item of expense: Administrative Part 4. Multiply the equipment valuation of processes and cost centers by the determined rate to obtain the amount of expense to be charged to each.

SCHEDULE VIII. Basis of gallons of water used by processes and cost centers. To be used as the basis for the distribution of the following item of expense: AW—Water department. In the case of water expense, it is necessary to obtain factors of usage per thousand pounds of yarn for each process and cost center using water. Such factors used in connection with actual productions during a given period plus the water used for wash rooms, elevators, etc., should produce approximately the gallons actually pumped or purchased by the plant.

Multiply the gallons of water for each process and cost center by the determined rate to obtain the amount of expense to be charged to each. This is only an illustrative list, indicating the method of classification best suited to the different distribution bases.

The schedules of expense distribution are as follows:

SCHEDULE IX. Basis of pounds of steam used by processes and cost centers. To be used as the basis for the distribution of the following item of expense: AHS—Steam. It is necessary to obtain factors of usage per thousand pounds of yarn handled for each process and cost center using steam directly in the process of yarn. In addition, it is necessary to obtain the poundage of steam required to heat and ventilate the plant. The pounds found to be required for the latter purpose should be distributed over processes and cost centers on the basis of square feet of floor area utilized by each. The above-described factors of usage employed in connection with actual productions during a given period plus the poundage used for heating and ventilating the plant should approximate the output of the boiler house. Multiply the pounds of steam for each process and cost center by the determined rate to obtain the amount of expense to be charged to each.

SCHEDULE X. Basis of kwh. of electric current used by processes and cost centers. To be used as the basis for the distribution of the following item of expense: AHP—Power and light. It is necessary to obtain factors of power usage and distribution of lighting and the kwh. so obtained should be reconciled with the actual amount purchased or produced. Multiply the kwh. for each process and cost center by the determined rate to obtain the amount of this expense to be charged to each.

TABLE VI

Processes and cost centers for which unit costs should be figured on the basis of an operating hour

DMW—Machine dyeing warp yarn
DHS—Hand dyeing skein yarn
DMS—Machine dyeing skein yarn
DPS—Package dyeing skein yarn
SMW—Machine splitting warp yarn
BRS—Spooling silk
BCS—Copping silk
BDS—Spooling cotton
BEP—Copping cotton
BBW—Beaming
BUW—Slashing
BNW—Quilling
BWW—Warping
BGB—Winding
BPB—Tubing
BFP—Winding camless cone
BLP—Reeling

SCHEDULE XI. Basis of pounds of yarn handled by certain processes and cost centers. To be used as the basis for the distribution of the following item of expense: AC—Chemical laboratory. Multiply the pounds of yarn handled by the processes and cost centers which are serviced by this department, by the determined rate to obtain the amount of expense to be charged to each.

SCHEDULE XII. Basis of pounds of yarn handled by certain processes and cost centers. To be used as the basis for the distribution of the following item of expense: AL—Trucking. Multiply the productions of the receiving and shipping processes by the determined rate to obtain the amount of expense to be charged to each.

SCHEDULE XIII. Basis of value of dyes used by dyeing processes and cost centers. To be used as the basis for the distribution of the following item of expense: ASC—Color stores department. Multiply the valuation of dyes used by the dyeing processes and cost centers by determined rate to obtain amount of expense to be charged to each.

When the schedules of expense have been built up and distributed as indicated in the foregoing paragraphs, it will be found that all expense has been disposed of and has been allocated and distributed to each process or cost center. Also all expense has been apportioned as base, burden, and total in each process or cost center. The sum of the expense of all processes and cost centers must now be reconciled with the total operating expense as shown by the plant cost records plus the fixed, administrative, and other expense obtained through the main books of account, adding the total amount of interest on investment. When this reconciliation has been completed, it remains to compile unit costs of each process and cost center.

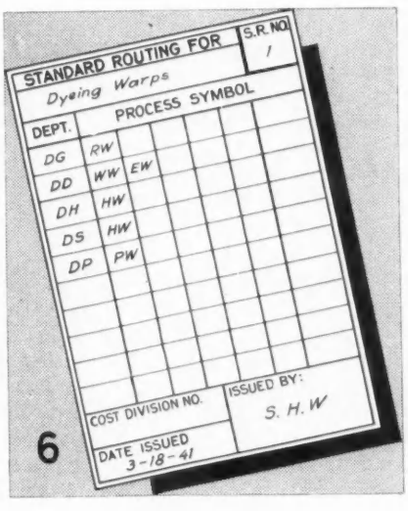
VIII. Process and cost-center unit costs. Because of the similarity and even flow of work through a large number of the processes and most centers, a pound of yarn will suffice as the basis for the unit cost. In some processes and cost centers, however, because of variations in speeds and time consumed by different lots, it will be necessary, in order to obtain any degree of accuracy, to figure such processes and cost centers on the basis of an operating hour. This hour record can be obtained in most cases from the workmen's time cards as compiled in separate schedule described in Section VI.

It is recommended that the unit cost of the processes and cost centers given in Table VI be figured on the basis of an operating hour.

IX. Standard routings. Every lot of yarn handled will pass through a certain sequence of processes and cost centers. Because of the repetition in lots of similar class and to reduce effort in compiling costs, it is desirable to establish standard routings. This should be accomplished by some one who has an intimate knowledge of plant activities, new routings being set up as occasion requires. A suitable form for this purpose is shown in Fig. 6.

A standard routing is defined as a series of processes and cost centers, in dependent sequence, for the handling of a given yarn. Such routings will include all processes and cost centers through which the yarn will pass, except processes and cost centers based on an operating hour. The treatment of these exceptions will be explained later.

Each standard routing should be designated by a number; and it is recommended that warp and skein be distinguished by separate series of numbers, viz., 1 to 100, warp routings; and 100 to 200, skein routings.



Eleven Man Maintenance Crew

Handles mill's service and repair work; daily inspections prevent most troubles

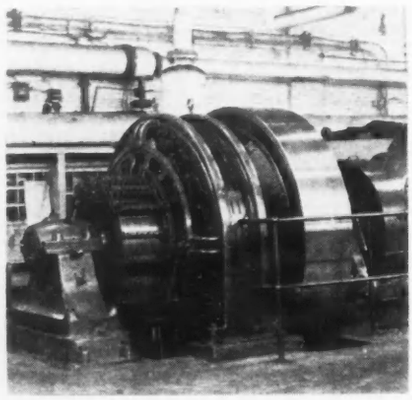
By WALTER DALTON
Plant Engineer, Continental Mills, Inc.

IT TAKES ONLY ELEVEN MEN to handle all service and repair work at Continental Mills, Inc., Philadelphia, in spite of the fact that the plant covers a large area and includes 18 buildings. This is the result of a carefully correlated and efficiently manned maintenance organization. The maintenance force is supervised by a single foreman. Under him are electricians, machinists, carpenters, and millwrights. As several departments of the mill operate 24 hr. per day, part of the maintenance force is split up into shifts. And as there are nearly always new installations or equipment changes being made, some of the force is generally tied up in installation work. In addition, a well-equipped machine and carpenter shop is kept busy making repairs and fabricating parts.

The company generates its own electrical power and uses large quantities of steam for process work. Work in the mill consists of carding, spinning, knitting, a small amount of weaving, dyeing, and finishing. This variety of work necessitates a wide range of production equipment which must be properly serviced. To reduce the service work of the maintenance force, the production men in every department are responsible for the upkeep of their machines and surrounding facilities. This means that they lubricate the machines, make minor adjustments, and keep the equipment and floor area clean. Major machine adjustments, repairs, belt trouble, and similar jobs are turned over to maintenance.

The maintenance department, therefore, looks after all motors, power drives, shafting, belts, and building equipment. In order that this work may be kept at a minimum, and at no sacrifice of reliability, the company has adopted the most up-to-date types of power-transmission equipment. For example, ball-bearing motors and hangers are used exclusively. This not only reduces lubrication requirements, but at the same time practically eliminates bearing trouble.

Over 285 motors are used in the mill, ranging from ¼-hp. fan motors to 50-hp. motors for group drives. All but



D.C. generators, as shown above in the engine room of Continental Mills, Inc., supply power to operate most of the mill's equipment

24 motors operate on d.c., with the result that there is no power-factor problem. Long experience with d.c. machines has educated the maintenance force in the proper care of commutators, so that there is no maintenance trouble from this source. Some motors have been in almost constant operation for 20 years and longer, with no commutator faults or shutdowns.

LACK OF TROUBLE with the d.c. equipment is due largely to frequent inspection and preventive maintenance.

Electricians on each shift make continuous inspection rounds, so that each motor is looked over once every two days. This inspection is more than a cursory job and includes cleaning frames and surrounding equipment that might cause dirt to get into motors, checking bearing lubrication, and examining commutators and brushes. Sparking and worn brushes are immediately replaced, and glazed or rough commutator bars are cleaned with soft pumice.

A careful check is kept on motor loads, particularly on group drives. When a motor shows signs of overheating, or repeatedly needs brush and commutator attention, the motor load is tested with instruments. Any overload is corrected by substituting a larger motor, or modifying the number of machines being driven. Spare motors are maintained in stock to permit quick replacements in case of motor failure.

The majority of the drives in the mill, both group and individual, are V-belts. A short time after each has been installed, and has had a chance to become stabilized as to stretch and fit in the sheaves, tension is corrected by means of sliding motor bases. After this, it is practically forgotten by the maintenance force, except for occasional tension checks and cleaning.

About 70% of the mill is group driven. The carding, knitting, dyeing, and wet finishing machines are all driven in groups, generally of three to five machines each. Spinning frames are all driven by individual motors. The looms are the only machines in the mill driven by a.c. motors. There are 24 of these, driven by 1½-hp., 3-phase motors. Alternating current for these motors is provided in the power plant by a 50-hp., d.c. motor driving a 35-kva. alternator.

THE MACHINE SHOP is equipped to handle all routine repair work, as well as to fabricate machine parts, sheet metal pans and guards, and other special equipment for the mill and power house. Machine tools include a milling machine, which is frequently used for cutting gears; a shaper; two lathes; machine hacksaws; and drill presses. In addition, there is a complete welding outfit. Two of the maintenance men are expert machinists.

The carpenter shop includes bandsaws and planers. Four men in the maintenance organization serve as carpenters and millwrights. They build everything from office partitions to foundation forms for new machines. Roof and floor repairs and both interior and exterior paint work, unless of minor nature, is done by outside contractors. This avoids tying up a large group of the maintenance men for this work.

Pipe-fitting work comes under the power plant department, which is a separate organization from the maintenance force. There is a boiler-house engineer and an engine-room operator on each shift. On the main day shift, four additional men handle all power plant maintenance and piping repair and maintenance throughout the mill.

Both maintenance and power-plant organizations are supervised by the plant engineer.

FIXING HOSIERY MACHINES

FULL-FASHIONED MACHINES — (Chapter IX contd) The Coulier Motion

By WALTER A. SIMOND

EXCESSIVE WEAR OF BEVEL GEARS is due usually to friction boxes being too tight, gummed jack beds, gummed slurcam box bar, or incorrect installation of a new gear. These causes are discussed in the March-April, 1934, issue of the *Reading Record*, from which the following is quoted.

"First, the extreme wear on the teeth of the gear shown in Fig. F20 obviously has been caused by the application of excessive friction to the splicing shaft (friction box rod) during the reinforcing of the stocking. If we analyze this gear with respect to the tooth conditions existing at the several stages of Couliering the above statement will be adequately borne out. Suppose we start at *A* where the slurcam boxes begin to travel across the head at normal speed; there are three teeth that, while they show wear, are still essentially good.

"This section of the gear represents carrier travel from the fabric selvage to the end of the plating, or reinforcing part, of the stroke. Here we reach point *B* where two teeth are broken from the gear, indicating that a demand for additional power is suddenly placed upon the machine, resulting in unusual strain on the bevel gear. Now since these broken teeth appear at a point where the plating carriers are stopped, it is logical to assume that the breakage is caused by the excessive force placed upon the gear teeth as the splicing shaft is forced to slide through the plating friction boxes after these carriers have come in contact with their stops.

"The plating frictions are invariably tightened down to insure an even selvage by preventing rebound of plating carriers, consequently it is natural that such breakage should occur at this section of the gear. As a result of this excessive friction, the teeth from *B* to *C* are heavily worn, the strain not being relieved until point *C* is reached where the slow motion begins. Therefore section *C* to *D* does not show any appreciable wear because the strain is released. The same conditions are seen to exist on the remaining half of the gear, thus indicating that the operating conditions are identical on the return movement of the carriers."

[The proper treatment for satisfactory results with the frictions will be discussed in a subsequent chapter of the hosiery-machine-fixing manual, which will describe the methods and operations concerned with adjusting the friction rods and boxes.]

"Second, gummed jack beds tend to increase the power it is necessary to deliver to the Coulier motion in order to sink the yarn. A condition such as this increases the resistance of the jacks and consequently places additional strain on the gear teeth." [For instructions on cleaning and lubricating jacks and beds, see Chapter VI, which appeared on page 72 of the December, 1940, issue of TEXTILE WORLD.]

"Third, the Coulier bevel gear will also meet additional resistance where a gummy oil is used on the slurcam box bar. Since the clearance between this bar and the slurcam boxes is only from 0.002 to 0.004 in., a very high grade of oil must be used to minimize the friction between these parts.

"Fourth, if a new gear is installed, it must be correctly meshed as shown in Fig. F21 at *B* with the back ends of the gear teeth flush. Here the centers of rotation of both the gear and pinion are coincident and there is a perfect meshing of gear and pinion teeth. These parts should fit snugly; that is, in such a manner that there is no appreciable play between the teeth and at the same time allow the gear and pinion to run freely, without any tendency to bind.

"To reduce the wear on the bevel gear and pinion and obtain long service from these parts, keep them covered with a film of No. 3 cup grease at all times. Do not use an excessive amount of grease; just enough to form a thin film over the teeth of gear and pinion. Where there is too much grease used it is likely to get on the Coulier brake and reduce its effectiveness."

Textile Machine Works

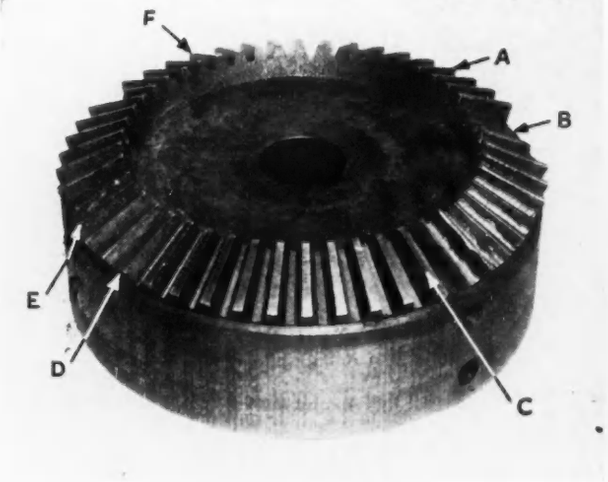


Fig. F20. Badly worn bevel gear

Textile Machine Works

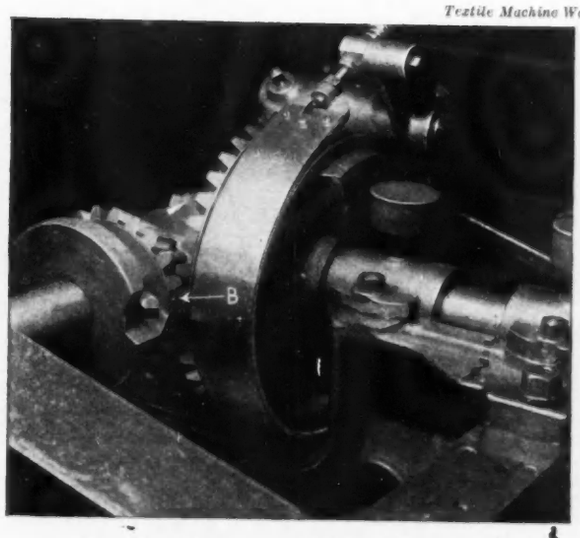


Fig. F21. Correct meshing of gear and pinion

FIXING HOSIERY MACHINES

CIRCULAR MACHINES — (Chap. XI contd.) Striper Drums and Thrust Bars

By JULIAN W. HUGHES

THRUST BARS. Inasmuch as circular hosiery machines have up to seven yarn feeds or fingers, each carrying a separate yarn for a distinctive purpose in knitting the fabric, and the fingers are at the brink of the needle hooks while their controlling drum cams are located near the base of the machine, there must be some means of connecting the fingers with the drum cams. This is accomplished by a series of thrust bars; one thrust bar for each yarn finger, and one track of cams around the drum for each thrust bar.

When the lower end of a thrust bar is on a drum cam, the corresponding yarn finger is pushed up out of the path of the hooks of the needles so that this particular yarn cannot be fed; but when the time comes for this yarn to be knit into the fabric, the drum and the cam move out from under the thrust bar, and the latter drops into a vacant space in the cam track, allowing the finger to snap down on the throat plate where the needles can engage the yarn to continue knitting.

These yarn changes are made while the cylinder is revolving at 160 to 200 r.p.m., so there must be no lost motion between the drums and the fingers, and the thrust bars must be kept free of obstructions. The bars are provided with coil springs to reduce lost motion and to bring them down smartly when they are released by the drum cams. The upper ends of the bars are provided with extension pieces so that adjustments for normal wear can be made.

Thrust-bar springs should be examined occasionally for correct tension. If they are too weak, the bar action is sluggish and causes bad laps when the yarn changes. Loose springs should be tightened, and the tension on all springs should be as nearly equal as possible; but excessive spring tension causes unnecessary wear and should be avoided. The comb which guides the bars must be kept free of all lint accumulations that might obstruct the normal functiong of the bars.

When the yarn fingers are resting on the throat plate in knitting position, there should be no play between the fingers and the thrust bars; play should be taken up by adjusting the thrust bar extension pieces. Even a small fraction of an inch of lost motion here might be enough to throw the yarn change out of time.

The thrust bar for controlling the high-spliced heel and double-sole yarn finger differs from the others in that, in addition to the vertical motion imparted by the drum cam, it has an outward and inward swinging motion imparted to it by a cam on the outside sinker ring. The function of this bar is to allow the high-spliced heel, double-sole finger to feed an extra yarn for one half-revolution of the cylinder, and to withdraw it from knitting action during the other half-revolution. This will be readily understood by referring to Fig. C21. During the knitting of the front part of the foot and ankle, the double-sole cam swings the thrust bar outward, and by so doing cams the finger and reinforcing yarn up out of reach of the needles. During the knitting of the high-spliced heel and double sole, the double-sole cam moves to the opposite side of the sinker ring, allowing the thrust bar to move inward, thus releasing the finger so that it drops on the throat plate to feed the yarn to the needles. The apparatus is out of action during the knitting of the welt, leg, heel, and toe; the drum cam raises the thrust bar high enough so that the double-sole cam cannot act on the projecting lug on the bar.

When the double-sole finger is out of action, it is important that the double-sole cam clear the lug on the thrust bar by a safe margin. If through wear the thrust bar becomes slightly shorter, the lug might not be quite high enough to be out of the path of the double-sole cam; this, of course, would cause the finger to operate when it should not.

Scott & Williams, Inc.

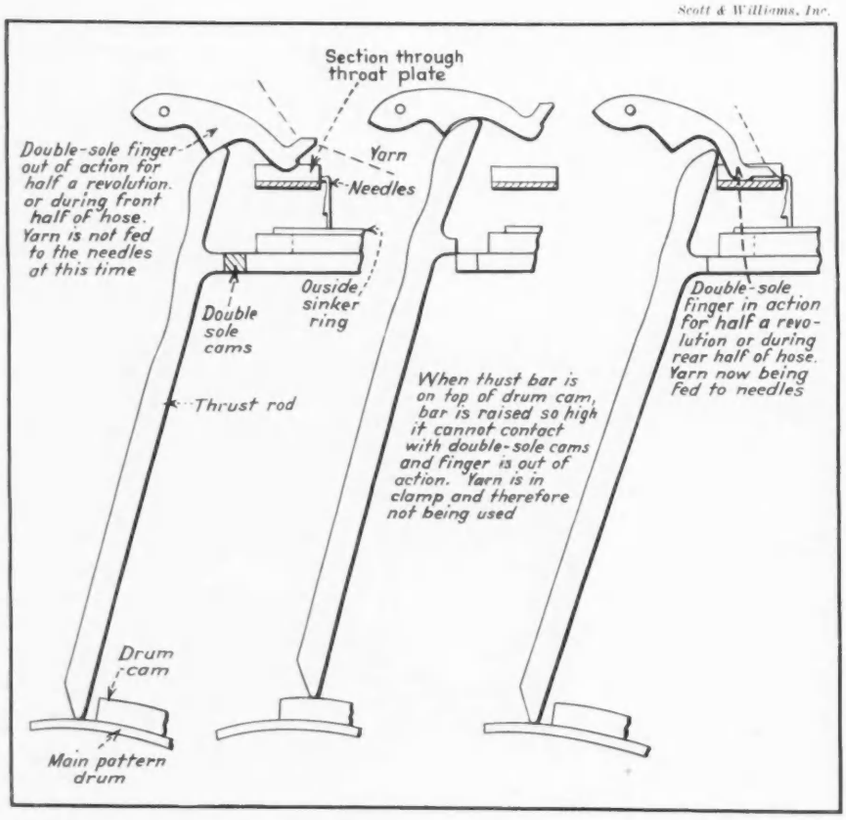

Section through throat plate
Double-sole finger out of action for half a revolution, or during front half of hose. Yarn is not fed to the needles at this time
Yarn
Needles
Ouside sinker ring
Double sole cams
Thrust rod
When thrust bar is on top of drum cam, bar is raised so high it cannot contact with double-sole cams and finger is out of action. Yarn is in clamp and therefore not being used
Double-sole finger in action for half a revolution or during rear half of hose. Yarn now being fed to needles
Drum cam
Main pattern drum

Fig. C21. Diagram showing function of thrust bar controlling high-spliced heel and double-sole yarn finger

TEXTILE EQUIPMENT NEWS

Improved Equalizer

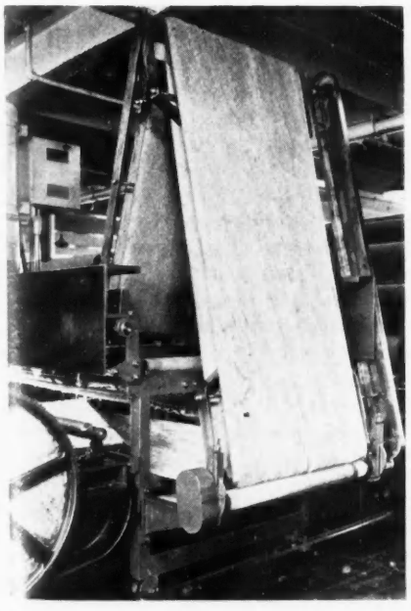
The Cavedon equalizer for woolen card feeds, originally described in the January, 1940, issue of TEXTILE WORLD, has been redesigned by Davis & Furber Machine Co., North Andover, Mass., and is now being offered by that firm. The device is placed between the breaker-card doffer and finisher feed table of a woolen card set, taking the place of the usual intermediate feed. It has for its purpose improving yarn evenness and uniformity, both as to size of yarn and mixture of fibers and colors.

The web of stock from the doffer of the breaker card falls on a delivery table formed by traveling 3-in. wide leather tapes of varying lengths. The tapes form a receiving table for the web that is approximately the triangular shape of an Apperly feed table. As each tape reaches the end of its travel outward from the doffer, the stock it carries drops on a canvas apron underneath, which runs at right angles across the card. Different tapes carry their stock varying distances across the transverse canvas apron, and the result is that the web from the breaker is narrowed by a predetermined amount, usually to a width of about 30 in.

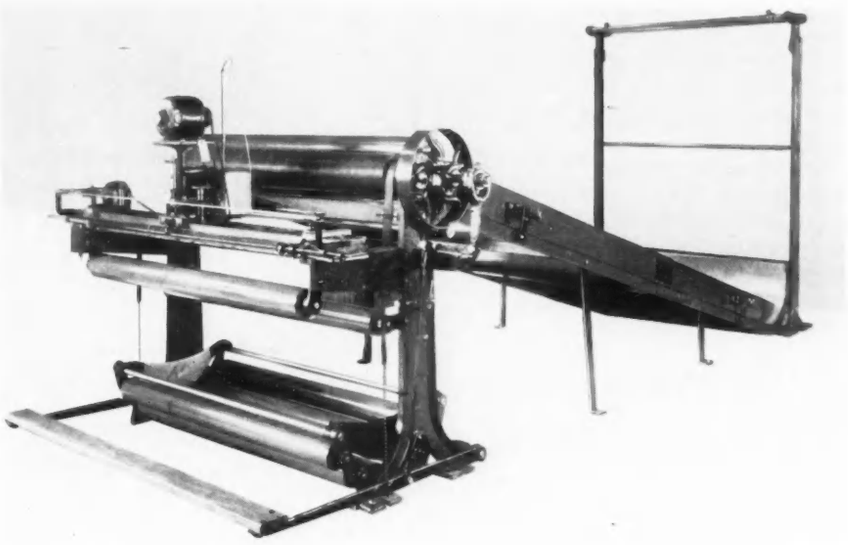
At the end of this crosswise canvas apron, the narrowed web of fiber is delivered to a type of camel-back, where another canvas apron carries it upward and then downward to the delivery end of the traverse motion, which lays the web back and forth across a wood slat apron. This slatted apron carries the stock to the feed rolls of the finisher.

From 15 to 30 thicknesses of the carded web are superimposed on the slatted feed apron, making a feed which is about 6 in. deep. This is said to result in several times the amount of mixing and blending given by other devices, and greatly to improve evenness of weighings from the card and, hence, yarn evenness and uniformity.

There is said generally to be enough space between the first breaker and the finisher section of a card set for the equalizer to be installed, as it requires less space than many feeds.



ard-feed equalizer (Davis & Furber)



Type L scray for shears (Curtis & Marble)

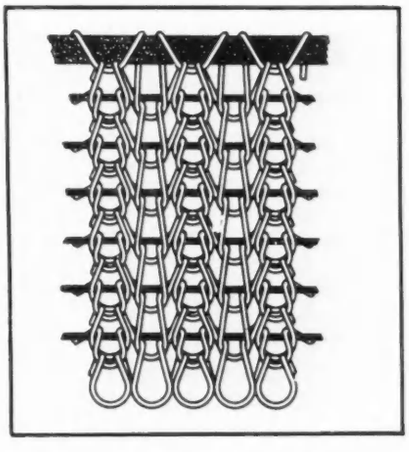
Scray for Shears

For use in connection with several of their shears, Curtis & Marble Machine Co., Worcester, Mass., have introduced the Type L scray, which incorporates a cloth cradle, railway sewing machine, and guide frame. It is pointed out by the manufacturers that the frame has been lowered so that operatives standing by the railway sewing machine can look over the top and see just how much cloth has accumulated in the scray. By means of a foot-treadle-operated clutch and brake, operatives can readily control movement of cloth into the scray. The guide frame used is for the purpose of giving the cloth a vertical lift which will straighten out the fabric just before it goes into the next machine.

The device can be equipped to produce either a single row of chain sitching or a flat butted seam, as required.

Elastic Laying-in Development

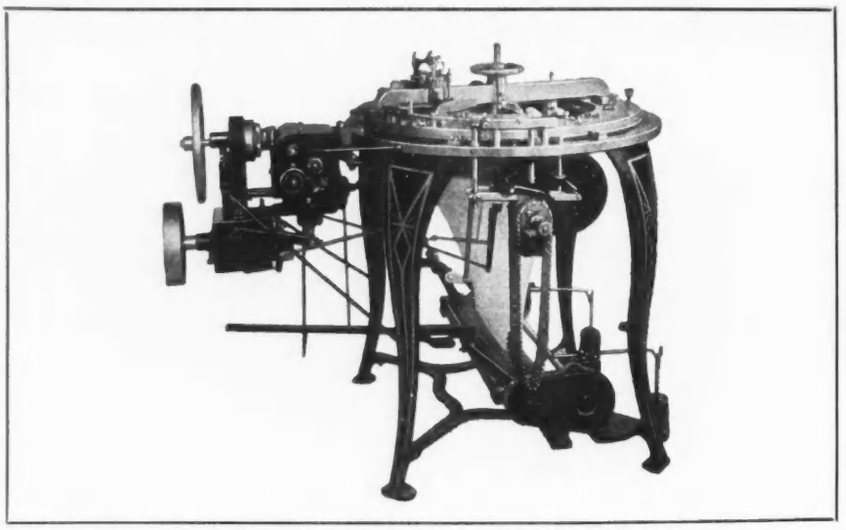
Granting of a new patent relative to production of elastic tops for hosiery has been announced by Hemphill Co., Pawtucket, R. I. The patent is a development of the lay-in type of Bannerlastic tops as knitted on machines pro-



Method of laying-in elastic yarn (Hemphill)

duced by Hemphill. It provides for laying in the elastic yarn throughout both the top and the edge of the top, while the inelastic yarn is tucked throughout the edge portion. The combination of laying in the elastic yarn and tucking the inelastic yarn is said to bring about several advantages, including a strengthened, more rib-like section of fabric at the edge of the top, which will resist curling as the stocking is handled on the retail counter.

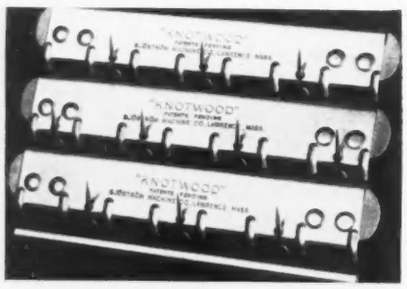
The invention is said to be applicable on both two- and three-feed machines set up to introduce either one end of elastic yarn and one of inelastic, or one end of elastic yarn and two of inelastic. It can be applied to men's, youth's, and children's hose.



Seamless sleeve transfer machine (Leighton)

Metallic Feeder Aprons

Production in the United States of metallic feeder aprons for a variety of textile machines has been begun by Sjostrom Machine Co., Lawrence, Mass. The aprons are said to increase production, insure even sliver and yarn, and reduce driving power required. They are driven by a special driving roller, which operates on the principle of chain and toothed sprockets. This is said completely to eliminate danger of slippage or uneven feeding. In addition, it is pointed out that the aprons are unaffected by climatic conditions, that



Metallic feeder apron (Sjostrom)

stock cannot work through between the slats, and that the aprons can be constructed to withstand wet or acidulous materials. The aprons are available in types for fearnought pickers, cards, scouring machines, carbonizers, and for the hoppers of all classes of automatic feeds.

Seamless Sleeve Transfer Machine

Recently introduced by Leighton Machine Co., Manchester, N. H., is a seamless sleeve transfer knitting machine. The machine, which is designed automatically to knit on cuffs, can produce three-color stripes, and is equipped with an automatic taper attachment. It is stated that the device knits a selvage edge, and that no cutting or seaming is required after the goods are removed from the knitting machine.

New Oven and Dryer Material

A novel type of oven and dryer construction utilizing Marinite, a fireproof structural panel material said to have high insulating qualities, has been announced by Johns-Manville Corp., 22 E. 40th St., New York. Features cited for the new construction include maximum efficiency of insulation by elimination of through-metal, easy removal and replaceability of sections, immunity to corrosion, and easy construction since panels can be worked with ordinary carpenter's tools. It is pointed out that the construction completely eliminates the need for a steel casing.

Scavenger Roll

E. F. Rose & Co., Maiden, N. C., have developed a new type of spinning-frame scavenger roll said to make possible better cleaning and easier stripping, and to minimize the danger of end trunnions becoming jammed in their bearings. The roll is covered with plush, put on in two pieces so arranged that the pile on each half of the roll lays toward the end of the roll.

In stripping, the operative grasps the roll at its center, where there is a seam of plastic material, and strips toward each end. The pile of the covering, already inclined in the direction of stripping, is said to collapse and permit all fibers easily to slip off the end of the roll.

Minimization of trunnions becoming jammed is achieved by use of tapered flanges which limit the distance trunnions are driven into the roll.

Photoelectric Control of Registration

A simplified system for accurately controlling or inspecting cutting and printing operations on cloth and other materials has been developed by Photoswitch, Inc., Cambridge, Mass. The system, which consists of a photoelectric control designated Type A80, is said to combine extreme sensitivity with high-speed operation. According to the manufacturers, it observes registration marks from penetration of light through transparent and translucent materials as well as reflection from opaque materials, and an impulse as short as 0.001 second will be detected by the control and converted into a controlling operation. After functioning, the unit resets automatically.

Air Separator

Containing no moving parts, screens, stones, filters, or wool, and designed to require no regulation or control, textile air filters manufactured by Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago, are said to be effective in removing oil, water, and dirt from air and steam passing through pipe lines and machinery, and are expected to have considerable application in the textile industry. Centrifugal force is used to remove undesirable elements. The distributors whirl the vapors against finns designed to collect dirt and moisture; pressure forces the collected impurities into a settling chamber.

Forced expulsion of impurities is

said to afford greater cleaning capacity; the separator is designed to operate efficiently in both high and low velocities. All parts are made of acid resisting, non-corrosive metals.

Laboratory-Model Fiber Cutter

Designed originally as one of a battery of cutters arranged to lap rayon staple cuttings for spinning into yarn without the usual intermediate processes, the individual cutters, manufactured by Taylor-Stiles & Co., Riegelsville, N. J., are now available as laboratory-model machines. Ball-bearing equipped, and utilizing non-corrosive metals in all parts that can be reached by fumes or liquids, the cutters are especially adaptable to wet-process rayon staple. An automatic limit switch on the head shuts off the power when the protecting head-guard is raised. Capacity is 6 single strips of fiber, each 1 in. wide.

Bunch-Saving Attachment

Illustrative material relative to the bunch-saving attachment for woolen mules which was described in the November, 1940, issue of TEXTILE WORLD, has become available and appears in an adjoining column. This device, which is manufactured by Gard Machine Co., Charlton City, Mass., is designed to make a short tapered wind on automatic bobbins; this in turn is said to reduce yarn breakage at the loom and decrease waste.

The attachment has a pivoted lever which is fastened to the floor adjacent to the back of the builder rail. This is connected to a lever on the front of the mule by a rod. Adjustments permit raising the rail the amount needed to get the length of bunch desired.

The device is said to reduce strain on yarn during spinning, and to make possible uniform bunches on every mule. It can be adapted for attachment to several different types of mules, in addition to that shown.

Metal Loom Reed

Excelsior Loom Reed Works, Pawtucket, R. I., has announced a new metal loom reed said to be so constructed that the solder enters all crevises, thus obviating dent breakage due to improper soldering and eliminating danger of acid pockets and soft spots.

Test installations under actual mill conditions are said to have shown the reeds to be high in strength and durability.

Useful Accessories for Textile Mills

Bimetallic tubing, having an inner tube of one metal and an outer tube of a different metal, recently introduced by Bridgeport Brass Co., Bridgeport, Conn., is being applied to uses where tubing is subjected to two different types of corrosive attack. Metal combinations are chosen to meet specific conditions. Increased service of the duplex tubing is said to make it more economical than tubing made from one metal.

Improvements in the Blue Streak single-stroke hand-lift truck have been announced by Yale & Towne Mfg. Co., 4530 Tacony Ave., Philadelphia. A balanced tubular handle with hand grip, tubular shaft, and lower handle casting welded into a single unit prevents parts from working loose; handle balancing mechanism keeps handle in upright position. Shorter handle stroke, counter-balanced load retaining hook, and self-locking lift hook are other improvements.

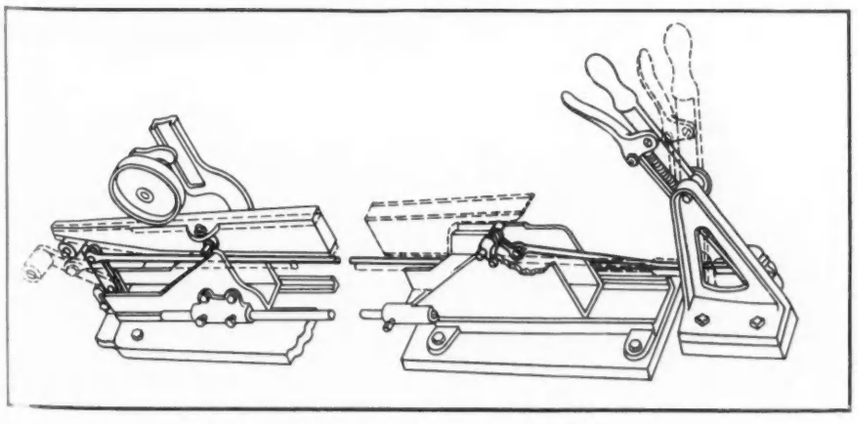
A time recorder, designed specifically for the needs of small offices, small plants, and other organizations having a limited number of employees, is being offered by International Business Machines Corp., 590 Madison Ave., New York. The recorder is small, compact, and provides printed, accurate time records; it is offered with two card racks and a supply of record cards.

A combination range switch has been announced by Square D Co., Detroit, Mich. It has 60-amp. two-pole main and range circuits, and four one-pole plug fusible circuits. Solderless connectors are furnished throughout; devices with parallel main and range switches are available. The Bakelite fusebreaks have test holes so that fuses can be tested without removing the fuse puller. The main and range fusebreaks are entirely non-interchangeable, and have the words "Main" and "Range" molded in the Bakelite so that the identification cannot be destroyed.

New Dyes and Chemicals

Synthetic Wetting Agent

A new synthetic wetting agent known as Triton E-79, has been announced by Rohm & Haas Co., 222 West Washington Sq., Philadelphia. The new material is said to be particularly valuable for its wetting-back properties; that is, when dried into a fabric, it makes subsequent wetting-back faster and more complete. Triton E-79 is unusual in that it is both oil and water soluble, making it useful in the preparation of oil and water emulsions. It is stated also that product has excellent wetting and cleaning properties.



Waste-saving attachment for mules (Gard)

General Dyes

General Dyestuff Corp. announces the following new products: Benzo Copper Blue BR Extra, a direct dye producing bright, reddish shades of blue of moderate fastness to washing, water, and light; and fairly good fastness to perspiration; after-treatment with copper sulphate gives very good light fastness.

Katigen Deep Black RND Extra Conc. CF and Katigen Deep Black RRND Conc. NEW CF, two non-dusting sul-

phur dyes producing full reddish blacks of very good fastness to cross-dyeing, perspiration, washing, and light.

Rapidogen Scarlet FFG, a Rapidogen color which produces bright, yellowish shades of scarlet of good fastness to chlorine and very good fastness to washing and light; it shows a high speed of coupling, being completely developed by a short acid ageing.

Celliton Fast Black BA a dispersed, direct-dyeing acetate dye of good dyeing and penetrating properties; it produces bluish black shades of very good to excellent fastness to light.

Rapidogen Red FFG, a Rapidogen color which produces bright shades of red of good fastness to light and very good fastness to washing and chlorine.

Calco Colors

Calco Chemical Division, American Cyanamid Co., announces the following new products: Calcofast Wool Yellow N, the first of a new series of metallized dyes characterized by exceptionally good fastness to light and wet processing; the new dye is said to produce much more uniform shade effects than the commonly used unmetallized type of dyes, and it is recommended for use on unneutralized carbonized stock.

Calconese Brilliant Rubine 2B, an acetate rayon dye, recommended for pink, wine, and bordeaux shades and as a component in formulations for tans or browns; dyeings have excellent fastness to light, fulling, washing, and pressing.

New Publications

Cellulose Chemistry

MICELLAR STRUCTURE OF CELLULOSE AND ITS DERIVATIVES; O. Krakty, translated by Julian F. Smith; Hooker Scientific Library, Fayette, Missouri; $1.25.

The first of a series of current literature translations relating to cellulose chemistry, this mimeographed pamphlet discusses the theory of individual micelles, the new micellar theory, micellar structure of natural fibers, dissolving cellulose and derivatives, reprecipitating from cellulose solutions, and refining and testing of the concepts of micellar structure.

Engineering Index

ENGINEERING INDEX ANNUAL VOLUME; Engineering Index, Inc., New York; $50.00.

This annual volume contains 1,410 pages with 26,000 annotations and 40,000 cross-references to the important articles that appeared in the American and foreign current technical periodical literature during the year. Every branch of engineering is covered. The book also contains an index of some 19,000 authors and contributors, and a list of the publications received.

A Textile Love-Story

DR. RED, by Thelma Thompson; Arcadia House, Inc., New York; $2.00.

This is a modern love story set against the background of an industrial town in the Cherokee Valley of Georgia. It introduces David Lee, affectionately known as "Dr. Red," who organized a medical clinic in the model mill town. The story is up to date since the mill begins to manufacture war supplies for national defense, resulting in a Nazi sabotage plot. The plot is foiled, and true love finds its way.

For those who like light novels—and their number is legion—this is easy to read. In addition, its textile background makes it that much more interesting to one identified with the textile industry.

The author is—in private life, Mrs. Walter Slayden—a young schoolteacher, of Thomaston, Ga.

Publications of Interest to Textile Men

SPOTS IN COTTON FABRICS, Alabama Cotton Manufacturers Association, Montgomery, Alabama. Report of a laboratory research covering microchemical analysis of spots in cotton fabrics.

ANIMAL FIBERS USED IN THE TEXTILE INDUSTRY, Benjamin Fain, Washburne Evening Trade School, Chicago, Illinois. 10¢. Describes and discusses properties of various types of wool, camel hair fibers, vicuna fibers, cashmere goat fibers, angora rabbit hair, angora goat fibers, guanaco, llama, alpaca and silk.

IMPROVED METHOD FOR CONVERTING AN OBSERVED SKEIN STRENGTH OF COTTON YARN TO THE STRENGTH OF A SPECIFIED YARN COUNT, Malcolm E. Campbell, Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C. Describes method for converting skein strengths to strengths of specified yarn counts and presents a conversion formula which, it is believed, will effect economies in spinning tests.

LESSONS IN ARC WELDING, Cleveland, Ohio, 50¢. Presents in a concise manner certain fundamental facts of welding, the knowledge of which will enable the operator to use the welding process successfully and economically.

1940 SUPPLEMENT TO A.S.T.M. STANDARDS, Part III, Nonmetallic Materials—General, American Society for Testing Materials, 260 S. Broad St., Philadelphia. Includes new or revised standards of textile testing machines. Test for resistance to moths of textile yarn and fabrics, tests for resistance to water of textile fabrics and terms related to textile fabrics.

A.S.T.M. PROCEEDINGS OF THE FORTY-THIRD ANNUAL MEETING, American Society for Texting Materials, 620 South Broad St., Philadelphia. Includes report of Subcommittee BI of Committee D13 on method of fiber analysis, report of Committee D13 on proposed revisions for textile materials, and report of Committee D13 on textile materials.

News of Suppliers

Universal Winding Co., Providence, R. I.—Owing to the entrance of Robert Leeson, president, into active service with the Navy, Parkman D. Howe, treasurer for the last decade, has been made president. Charles L. Bates, who joined the company last fall, has been appointed vice-president in charge of domestic sales and engineering policy. Charles H. Carswell, comptroller from 1931 to 1936 and since then with the Barber Asphalt Corp., has returned to Universal as treasurer. Robert A. Leeson continues as chairman of the board, with supervision of the company's major policies. Edward O. Smith, vice-president, continues as head of the export department. The following also continue unchanged: Thomas L. Cotter, sales manager; E. Robert Swanson, chief engineer; Ralph L. Chisholm, sales engineer and advertising manager; William A. Ruhl, works manager.

Niagara Alkali Co. and **Electro Bleaching Gas Co,** Niagara Falls, N. Y., affiliated since 1915, joined forces on

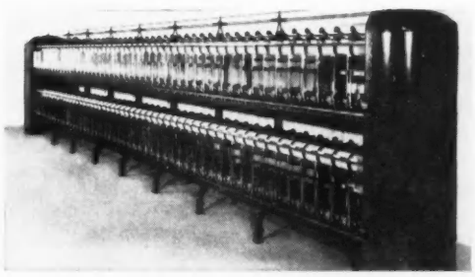
A GOOD NUMBER TO REMEMBER

when you or your customers are calling for better silk, rayon or combination yarns and more of them per day at lower cost per pound.

Model 110, designating the most advanced design of Atwood Twister, is destined to become as well and favorably known as the famous Atwood *"5B"*.

Already it has established a brilliant record of performance under today's most exacting conditions.

If you haven't looked into the *Model 110* and its money making and money saving possibilities on *your* yarn production, *now is the time.* For full information get in touch with our nearest office.

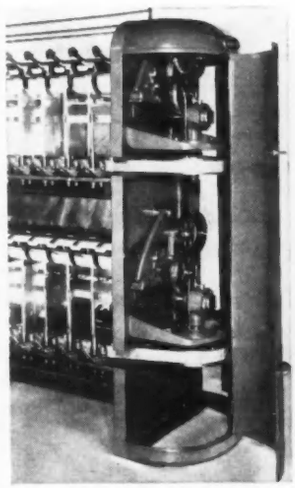


The Atwood Model 110 Twister designed and built to produce yarn that will vastly improve the efficiency of the knitting and weaving operations as well as the twisting operation. It turns out yarn of accurate twist, uniformity and cleanliness on perfectly formed packages, the right size and weight for the job.

•

Right

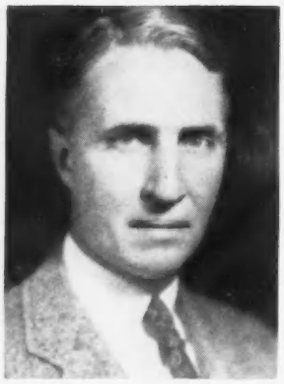
The compact, businesslike gear unit of the Model 110 Twister. Twist gearing can be adjusted from right to left in less than a minute. Spiral bevel gears are continuously lubricated by a built-in oil pump. Both ends of the Model 110 are totally enclosed, readily accessible.



THE ATWOOD MACHINE COMPANY

STONINGTON CONN., U. S. A.

SALES OFFICES: WILKES-BARRE • STONINGTON • CHARLOTTE • LOS ANGELES • MANCHESTER, ENGLAND
BUENOS AIRES • SAO PAULO • MEXICO CITY • MELBOURNE • SYDNEY • BOMBAY • MADRAS



J. CLARKE CASSIDY, elected president of Niagara Alkali Co.

July 1 and are operating as one organization under the name of Niagara Alkali Co. This move involves no change in personnel or policies, and is the logical result of their closely-knit producing, selling and distributing operations. Niagara Alkali manufactures caustic soda, caustic potash, carbonate of potash and paradichlorobenzene at its plant in Niagara Falls, N. Y. Electro Bleaching Gas, at its adjacent plant, produces by the electrolytic method, EBG liquid chlorine. J. Clarke Cassidy for many years works manager of the two companies has been made president of the merger. E. D. Kingsley is chairman of the board, while S. W. Jacobs and S. J. White continue as vice-presidents.

Emmons Loom Harness Co., Lawrence, Mass., and Charlotte, N. C., announces that Albert R. Breen, with headquarters at 80 East Jackson Boulevard, Chicago, again represents them as agent in the following States: Michigan, Indiana, Illinois, Ohio, Wisconsin, Missouri, Iowa and Kentucky.

Hygrade Sylvania Corp., Salem, Mass., announced reductions totaling 15% in the price of fluorescent lamps effective Aug. 1.

Solvay Process Co., alkalies and nitrogen products, has established a separate Product Development Section with W. E. Blair, manager, and D. H. Ross, assistant manager. Headquarters will be at 40 Rector St., New York.

Textile Machine Works, Reading, Pa.; **E. I. du Pont de Nemours & Co.,** Wilmington, Del.; **International Nickel Co.,** Huntington, W. Va., are among 14 companies awarded an "E" award by the Navy Department for being well up or ahead of schedule in naval ordnance production. A plaque and flag go to the company and its employees may wear appropriate buttons. The "E" stands for "excellence" and is the Navy's way of saying "well done!"

Terrell Machine Co., Charlotte, N. C., has appointed James F. Notman as direct factory salesman for the New England territory. Mr. Notman will handle the Terrell line of bobbin cleaning and handling equipment and also Denman fabric loom-parts for which the Terrell company has the exclusive sales agency. Mr. Notman's headquarters are at 1550 Great Plain Ave., Needham, Mass. He was graduated from M. I. T. in 1935 and until joining the Terrell organization traveled in New England as sales engineer for B. F. Sturtevant Co. E. W. S. Jasper, Inc., Terrell sales agent for Pennsylvania and New Jersey, has added New York State to its territory.

Dixie Mercerizing Co., Chattanooga, Tenn., was given one first award and one third award in the annual competition of the National Advertising Agency Network convention in Chicago. The Purse Co., Chattanooga, agency for

JAMES F. NOTMAN, direct factory salesman in New England for Terrell Machine Co.

Dixie Mercerizing Co., submitted the Dixie samples. Dixie's direct mail campaign won first award in its class and the Dixie business paper campaign won a third award. The latter consisted of twelve advertisements used during 1940-41 to impress the knitting trade with the advantages of Durene yarn.

J. E. Sirrine & Co., Greenville, S. C., received an award at the recent convention of the National Advertising Agency Network in Chicago for the second best advertising campaign appearing in general magazines and supported by trade papers. This series, prepared by the Roland G. E. Ullman Organization of Philadelphia, began with an advertisement entitled "The Tramp of Marching Feet Echoes in Your Factory Aisles" which first appeared last year on the day the Germans marched into Belgium and Holland.

Heinemann Co., Chicago, has appointed Aberfoyle Mfg. Co., Philadelphia, Pa., as its sales representative in Pennsylvania, New York and New Eng-

CALCO CHEMICAL DIVISION, and the AMERICAN CYANAMID & CHEMICAL CORP., now occupy joint quarters at Charlotte, N. C., in a new air-conditioned structure, especially designed for the needs of these two chemical organizations. It houses offices, laboratories and warehouses at 3333 Wilkinson Boulevard. American Cyanamid & Chemical before this move had been located for a number of years at 822 West Morehead Street, and Calco's former Charlotte address was 1112 South Boulevard. The building, shown at left above, is adjacent to American Cyanamid's Charlotte plant. At right is shown a view in Calco's textile laboratories in the new building. With the apparatus available it is possible to dye yarn, piece goods or raw stock. Shade matching and the testing of formulations can be quickly accomplished. Fastness properties may be tested. Southern sales manager for Cyanamid is Hugh Puckett, and for Calco is J. E. Moore.

AMERICA BUILDS A BOMBER

LET'S GO! U.S.A. KEEP 'EM FLYING!
UNCLE SAM NEEDS PILOTS BE A U. S. ARMY FLYING CADET

and SONOCO helps

. . . the entire nation supplies materials for a flying fortress. The Textile Industry is among the many industries called upon to contribute Rayon—Cotton—Fabrics—Twine—these are products of suppliers that depend on SONOCO for *textile paper carriers*—a vital necessity to an industry, vital to our national defense.

SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

sonoco SERVES THE WORLD
PAPER CARRIERS

land territories. F. W. Hancock, vice-president in charge of Aberfoyle sales, will supervise the Heinemann sales in addition to his regular duties. The following Aberfoyle salesmen will represent the Heinemann lines; Bert Yeabsley, Philadelphia; Ed. Golden, Reading; Jack Kenrick, Virginia and Western Pennsylvania; Frank Miller, New York, and Jim Neil, New England. Other territories will be represented as heretofore.

Hercules Powder Co., Wilmington, Del., has purchased the synthetic resin business of **John D. Lewis, Inc.,** Providence, R. I. Lewis products, which Hercules will continue to manufacture, include Imperial ester gum, Lewisol maleic-modified ester gums, Lewisol phenolic-modified ester gums, and various phenolic and alkyd resins. John D. Lewis, Inc., will continue in the production of textile and heavy chemicals at Mansfield, Mass. The Lewis company's sales and manufacturing facilities will be joined with the Synthetics Department of Hercules, which has been producing synthetic resins since 1936 under the direction of W. M. Billing.

Fedders Mfg. Co., Buffalo, N. Y., has promoted Edmund R. Walker to

EDMUND R. WALKER, of Fedders Mfg. Co.

assistant general manager of the company. He was formerly manager of the company's Air Conditioning Division.

Borne Scrymser Co., New York, is constructing a two-story, 50x100 ft., brick and steel office building at its Elizabeth, N. J., plant. Upon completion of the new unit this fall, executives, clerical force, and sales department will be moved from their present New York City location.

George Stinsman has recently opened an office in the Rhodes-Haverty Building, Atlanta, Ga., having moved in from Piedmont Road. Mr. Stinsman represents Robins Conveying Belt Co., Sterling Electric Motors Co., Ajax Flexible Coupling Co., Magnetic Engineering Mfg. Co. and others.

TEXTILE MACHINE WORKS, Reading, Pa., receives the highly-prized Navy "E" award in recognition of outstanding performance in the production of Navy ordnance material. On July 25 officials of the Reading company were received by Secretary of Navy Knox at his office in the Navy Building, Washington, and presented with flag and plaque as shown above. Left to right are: Samuel R. Frey, executive of the Narrow Fabric Co.; Louis Thun, assistant treasurer, Textile Machine Works; Secretary Frank Knox; Dr. John E. Livingood, vice-president of Textile Machine Works. The Secretary said that the "E" award was the Navy's way of saying "Well done!"

George M. Porges has resigned as vice-president and director of the Kaumagraph Co., Wilmington, Del., effective July 31, and has opened a temporary office at 271 Church St., New York. He was with Kaumagraph for over 20 years and for the last 15 years has directed its sales and advertising activities. He contemplates continuing his activities with the knitting industry with which he has been closely associated for many years.

S. Blickman, Inc., Weekawken, N. J., has appointed Slaughter Machine Co., Charlotte, N. C., as representative for the sale of Blickman stainless-steel textile-dyeing equipment in the States of Virginia, North and South Carolina, Tennessee, Georgia and Alabama.

A. B. Carter, Inc., Gastonia, N. C., has appointed R. D. Hughes, of R. D. Hughes Sales Co., Dallas, Texas, as its agent in the Texas territory to handle the Boyce weavers' knotter for Mill Devices Co. and Carter ring travelers for Carter Traveler Co.

Link-Belt Co., Chicago, announces that F. V. MacArthur, after nearly 50 years of service, has resigned as secretary and assistant treasurer, and is retiring from business. Harry E. Kellogg, treasurer and assistant secretary, has been elected secretary, thus becoming secretary and treasurer.

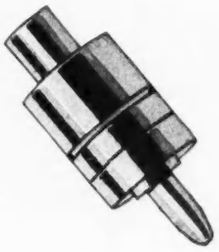
Quaker Chemical Products Corp., Conshohocken, Pa., in accordance with its policy of sharing profits with all employees, made cash payments to employees on July 1. These payments varied from one to six weeks' pay based upon the individual employee's term of service with the company.

Rumford (R. I.) **Chemical Works** has been awarded the citation annually bestowed by the Engineering Societies of New England for the company's development of a product which opens "new and desirable applications and so extends the possibilities of employment." The award was granted in recognition of Rumford's development

C. H. CAMPBELL (left), vice-president of Sonoco Products Co., Hartsville, S. C., and P. B. PARKS, JR., superintendent of Erwin (N. C.) Cotton Mills, Plant No. 5, discuss their problems at the recent S. T. A. meeting at Myrtle Beach.

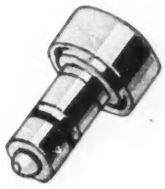
The products of

New Departure

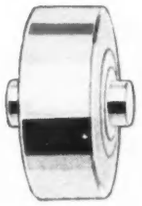


are *Ideas*

as well as



Bearings



New Departure, Division of General Motors, Bristol, Connecticut

Nothing Rolls Like a Ball

ADVERTISING PAGES REMOVED

of sodium tetraphosphate, marketed under the trade name of Quadrafos.

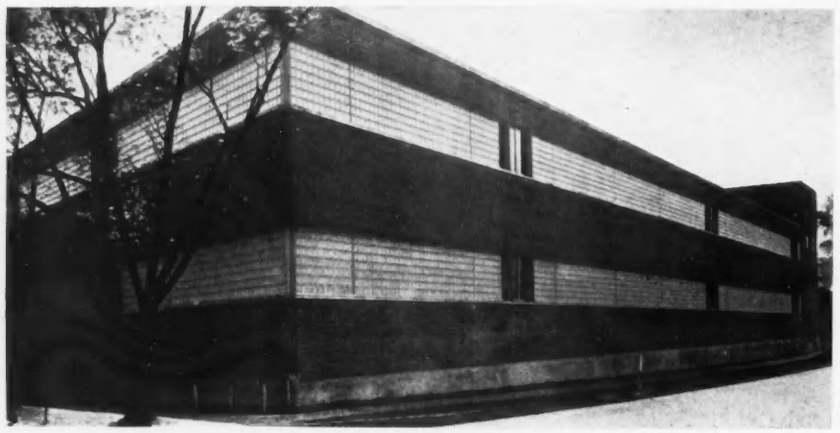
Monsanto Chemical Co., St. Louis, Mo., has promoted Charles B. Durgin, of Anniston, Ala., group leader in the research department of the Phosphate Division, to assistant director of research. Dr. Russell L. Jenmins is the director of research.

B. F. Goodrich Co., Akron, Ohio, has transferred O. C. Mueller as sales representative from Cincinnati to Pittsburgh. He is succeeded at Cincinnati by A. C. Lutz. J. M. Cooney is transferred from Cincinnati to Dayton, Ohio, B. E. Silver, formerly with the manufacturers' sales department in Washington, joins the hose sales department at Akron, Ohio. Clyde DeLong has been named operating manager of the Goodrich mechanical sales division.

Foxboro (Mass.) **Co.** has added Paul T. Graff to its staff as a sales engineer, specializing in the promotion of the company's control instrumentation. He will be located at the company's main office at Foxboro, Mass. The company has also added Elmer E. Forslind as a sales engineer to its New England office, at Foxboro. William Wallace Nelson, who, for the last four years, has been a Foxboro service engineer, has been transferred to the New England sales force.

Rockford (Ill.) **Industrial Marketers** has been granted a charter by the National Industrial Advertisers Association. At the presentation meeting, Keith J. Evans, the founder-president of N.I.A.A., and sales promotion and advertising manager of Inland Steel Co. and Joseph T. Ryerson & Son, outlined the growth of the association. The 19th annual conference of N.I.A.A. will be held in Toronto, Sept. 17 to 19.

Precision Finishing Machine Corp., Lynchburg, Va., has been formed by Philip Hickson to produce equipment and to decorate fabrics by a screen-printing method.



GREENFIELD (Mass.) TAP & DIE CORP. has completed and is now operating the above new plant which will more than quadruple the company's production of gages. Building was erected by E. J. Pinney Co., Holyoke, to plans drawn by McClintock & Craig, Springfield, Mass. It is two stories, 200x80 ft., of brick construction, windowless, with two tiers of glass brick on two sides. Provision has been made for adding a third story when necessary.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has established a new department to be known as Priorities Management, according to announcement by Max W. Babb, president. "It has become necessary," said Mr. Babb, "that an organization should be set up to help in directing the company's activities pertaining to priorities. The purpose is one of coordination and assistance, and it is not designed to take over any of the obligations and duties now a function of other departments." L. W. Grothaus, vice-president of the company, heads the Priorities Management Department. G. V. Woody is administrator and O. S. Larkby, Jr., is his first assistant.

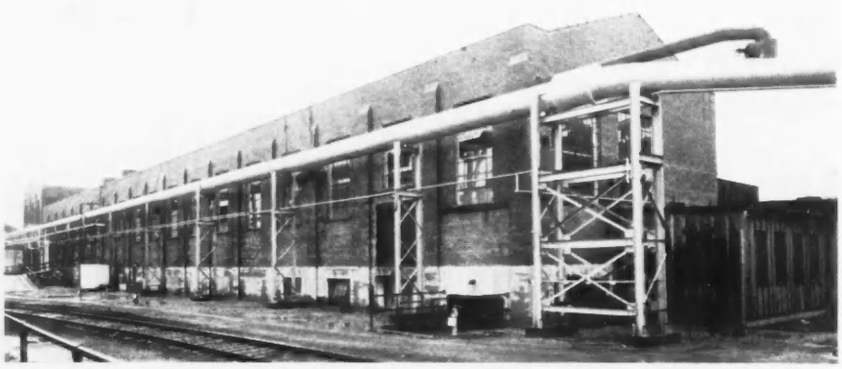
Pittsburgh (Pa.) **Plate Glass Co.** reports an increase of more than 60 percent in its industrial paint sales during the first six months of this year, compared with the corresponding period of 1940.

1940 MACHINERY IMPORTS

IMPORTS OF INDUSTRIAL MACHINERY into the United States in 1940 were valued at $4,125,661, a 48% decline from the 1939 total of $7,893,152, the Department of Commerce reports. Imports from Germany dropped from $3,639,354 in 1939 to $175,335 in 1940. Imports from other countries remained fairly steady. About 50% of the 1940 imports came from the United Kingdom. Approximately 25% of the 1940 imports consisted of textile machinery. Imports of this type of machinery dropped to $1,031,414 last year from $2,346,977 in 1939. The largest decline in this group was knitting machines which amounted to only $115,984 in 1940 compared with $1,170,807 in 1939.

Celebrates 110th Birthday

Philadelphia (Pa.) Quartz Co. celebrated its 110th birthday on July 20, since it was on that date in 1831 that Joseph Elkinton started his soap and candle business at 377 South Second St., Philadelphia. Copies of the interesting historical brochure printed by the company for its 100th anniversary are still available. Reproductions of early wood-cuts and documents in this book lend realism to the early incidents. Joseph S. and Thomas, sons of Joseph Elkinton, joined their father in the growing business and their names succeeded his when he retired in 1862. The name, Philadelphia Quartz Co., was first used in 1864 for the partnership devoted to the manufacture of silicate of soda as developed by Thomas Elkinton. Soap manufacture was discontinued when the Philadelphia Quartz Co. was incorporated in 1904. William T. Elkinton, son of Joseph S., was president until his death in 1933. His son, Thomas W. Elkinton, great grandson of the founder, is now president of the company, which has nine plants and an affiliated company with two plants in California.



AMERICAN VISCOSE CORP. is producing rayon staple fiber on an experimental basis in this 300-ft. pilot plant, recently set up at its Nitro, W. Va. plant. Facilities are provided for studying all phases of Fibro production, from the preparation of the viscose solution to the packaging of the finished product.

THE OVERSEERS' CORNER

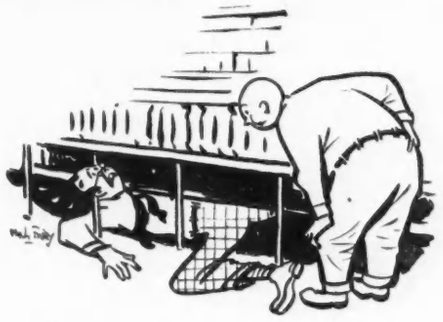
OVERSEERS WORKING ON MACHINERY

A PETE & BILL DISCUSSION

As Pete walked through Bill's room he observed a familiar pair of legs sticking out from under a frame.

"What's the idea of rolling around on the floor?" said Pete, stopping and stooping over to get a better view of Bill's flushed and perspiring face. "Don't you have fixers to work on your machines?"

Bill looked up. "How is a man going to boss a bunch of fixers and be sure they are doing a good job if he isn't a better fixer than they are?" he demanded as he squirmed out from under and rose to his feet. "If I didn't know how to fix everything on every machine in this room, and if I didn't go around and check up on my fixers' work, I'd be a poor excuse for an overseer."



Stooping over to get a better view of Bill's flushed and perspiring face

"Bill, I'm surprised at you!" exclaimed Pete. "An overseer is supposed to be a manager and run his room efficiently, and he can't do that if he spends a lot of time rolling around on the floor checking every bolt that his fixers tighten. As long as a man has a good general knowledge of his machines and can handle his labor, he can be as good an overseer as anybody else. Besides if you work over 20% of the time, the law says you're not an overseer. So where are you?"

"Young fella," said Bill disgustedly, "when an overseer stops knowing how to fix his machinery, he's through. So I still work on mine."

"Well, I've forgotten a lot of what I used to know about fixing mine, and I'm not worried about my job," replied Pete smiling as he walked on toward the superintendent's office.

Should an overseer maintain his ability to fix his machines?

Letters from Readers

Deductions Can Become Exploitation

"Payroll Deductions and Credit"
Pete & Bill, June, 1941

Editor, Overseers' Corner:

With reference to your discussion of "Payroll Deductions and Credit," they are like religion and politics; there is nothing the matter with any of these activities in theory—it is the manner in which they are administered. Any activity that has for its effect the mental and moral uplift of people on the basis of their having to deprive themselves in some way to pay for the assistance, cannot in any way be held to be degrading or harmful. But it is a never ending question and as long as we have selfishness and greed, consideration of deductions and credit can develop into exploitation.

W. R. BELDON, Manager
Clark Thread Co. of Ga., Austell, Ga.

Give the Boy a Chance

"Discharging a Misfit"
Pete & Bill, May, 1941

Editor, Overseers' Corner:

The problem of what to do about employees who are misfits is one that plagues most overseers. The attitudes of Pete and Bill are two points of view of the subject, and what I am about to say probably is a third. Perhaps what I say will be regarded by some as a bit of philosophy that sounds good but does not work. However, I have seen it work.

Pete says that he has suggested to his problem child several times that he hunt another job. Why doesn't Pete have a heart-to-heart talk with the boy and try to find out what the trouble is? He could point out to the boy that he was on the borderline and that he was being watched, and that failure to improve ultimately would lead to discharge while an improvement would bring a suitable recognition. Such a statement from an overseer usually has one of two possible effects: it makes the employee more careless and gives definite grounds for discharge, or it gives him determination to do better work because of the knowledge that an improvement will be rewarded. In either case, Pete's problem would be solved.

However, there are some few people

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42nd St., New York.

who will not react in either of these ways, and when one of these becomes such a problem, another solution must be found.

W. W. H.
(South Carolina)

Favors Deductions

"Payroll Deductions and Credit"
Pete & Bill, June, 1941

Editor, Overseers' Corner:

Why should not the mill make deductions from employees' pay checks? Does not the National Labor Relations Board, operating under the Wagner Act, sanction, yea even compel, employers to deduct union dues and turn them over to the union? Personally, I can not see much difference in the deduction of union dues and the deduction of the grocery bill, providing, as the law requires, the mill makes no profit on the deal. As for profit, everyone knows that deductions cost the mill money because of the extra time and clerical help needed.

G. Moore
(Chattanooga, Tenn.)

★ ★ ★

Outings, Prizes, and Such

Daniel Meredith, Paul G. Weiner, and Anthony Menegus, employees of Botany Worsted Mills with records of 50 years of service, were presented with console radios at the foremen's dinner in June. Presentation was by Jack Schmidt who received a gold watch a year ago for similar service.

Twenty textile companies have entered the contest for "Comer Cups" to be awarded winners in the first Alabama Textile Safety contest. Hugh Comer, vice-president of Avondale Mills, Birmingham, Ala., is offering two silver cups: (1) for best safety record in spinning mills, (2) weaving and spinning mills.

Employes of the Holyoke (Mass.) Worsted Co. held their first annual outing July 15 at the Mt. Tom Reservation. After a dog roast, games were enjoyed. The group later went swimming at Hampton Ponds.

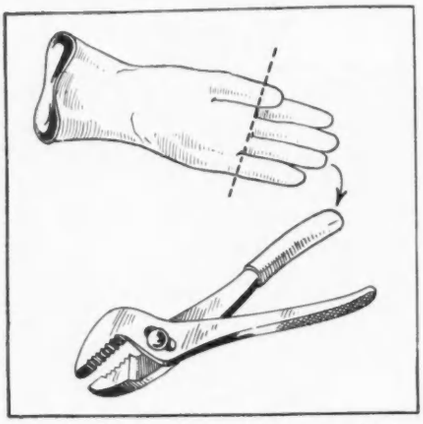
At an outing participated in by about 2,200 employes, their wives and children, V. H. Bruneau, manager of the Milltown, N. B., mill of Canadian Cottons, Ltd., was a speaker. He presented a silver trophy to the winners of a softball game between the mill executives and a team representing the United Textile Workers local, won by the union team.

Overseers' Practical Helps

Insulated Pliers

A discarded rubber glove can be used to insulate any type of hand pliers merely by cutting the fingers from the glove and slipping them on the plier's handles, as shown. Cut the tips from two fingers so they can be pulled far down on the handles. On the other two fingers, leave the tips on so they will entirely conceal and cover the handle ends.

In weaving plants where rubber temple rolls are used, discarded rolls can be slipped over the plier handles in place of glove fingers. Remove the wooden cores from the temple rolls and force the rubber tubes over the handles. Allow about ½ inch of rubber to clear the end of each handle and seal this with tape or rubber cement.



Plier handles insulated with fingers of rubber gloves.

For minor repair work around elec-

What Causes Accidents

ACCIDENT PREVENTION is a constant fight; a fight that derives some of its momentum from the fact that the elimination of one hazard frequently creates another, and from the fact that a seeming elimination of a hazard is no such thing at all. The following excerpts from the American Mutual Magazine illustrate both types of hazards in addition to that most common one—no protection.

Catches Arm in Dye Jig

While passing cloth through a caustic solution in a dye jig, a worker's arm was caught and broken in seven places. The management had provided heavy rubber gloves, similar to those used by linemen, to control this caustic soda hazard but this man's gloves were too large, bulky and heavy in weight. While spreading the cloth on the roll, the finger ends of the glove were caught under a cord and his arm wrapped around the roll; it was found that the gloves were so large that he had been using the finger tips to feed the cloth into the machine instead of employing the customary smooth stick.

Falls on Stairs

The safety organization of a textile plant attributed a bad fall-on-stairs accident to faulty shoes. Further investigation brought to light the fact that 40% of the plant workers were wearing shoes not conducive to personal safety during ordinary machine operations. Girls, in particular, were outfitted with loose fitting house slippers, button shoes with straps dangling and the ever-dangerous, insecure high heels. Many of the men were dressed with shoes badly in need of repair. New standards for foot gear adopted by the safety committee quickly cut down the vulnerability of shoe-caused accidents.

Bobbed Hair Safe?

Numerous industrial officials have stated that, with the advent of bobbed hair, no more concern need be given regarding feminine hair becoming entangled in machinery. Nevertheless, in a certain braiding plant, a female operator was in the act of oiling a hanger that supported some shafting located along the floor, when her hair came in contact with the moving belt and pulley of the braiding machine. As a result, a terribly severe head injury was sustained. This case reveals that, in many plants, a vital necessity for caps and close fitting hair nets exists.

Hotfoot From Acid

A pair of rubber boots is a great help when working around acids, but if the pants are worn inside of them, the boots become "catchers" and introduce a hazard that is sometimes more dangerous than the original one. Make sure the pants are worn over, not inside, the boots. The same is true of gloves. Be sure that the sleeves of arm protectors cover at the wrist—otherwise you've got another "catcher."

—from the American Mutual Magazine published by American Mutual Liability Insurance Co.

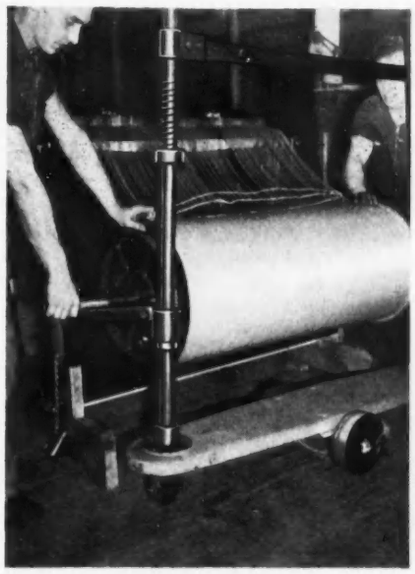
trical circuits, these rubber-covered pliers may save one from severe burns. Another benefit will be the extra gripping power obtained through the corrugated surface presented by the temple rollers. It helps considerably where grease is encountered.

H. E. W. (*Pennsylvania*)

Warp Truck Obviates Lifting Heavy Beams

On a recent field trip, one of TEXTILE WORLD's roving reporters noticed an interesting home-made warp truck which obviates lifting heavy beams. In the accompanying photo a warp which has just been drawn in is being loaded onto the truck. The truck has a swinging metal "runner" at each end. One of these is seen at the left in the photo. The distance between the two runners is the same as the width of the frames which hold warps during drawing in. The runners are rested on brackets on the frame, a couple of short lengths of pipe slipped over the beam gudgeons, and the warp slid on the runners until it contacts the upright pipes of the truck. Then the runners are swung upward and their ends caught under catches which slide up and down on the upright pipes. Springs push the catches down as far as they will go, thus locking the warp in position.

The loaded truck is now rolled to the loom in which the warp is to be mounted, and the loading operations repeated, only in reverse. First, the catches are pushed up out of contact with the runners. Then, the runners are swung down until they touch the bearings into which the beam gudgeons fit. Next, the warp is slid into place.



Use of this warp truck eliminates lifting heavy beams

All this takes place without any lifting or straining by operatives. Trucks are long and narrow, so that they can easily be rolled down narrow loom alleys.

Eliminating Yarn Defects

By correcting some of the small things which frequently pass unnoticed

By JOHN T. KERSEY

ON WINDERS AND SPOOLERS, slub catchers with openings or gage settings suitable for the count being run will usually stop most of the slugs, gouts, and other defects in the yarn but, unless the yarn tension suits the count, weak and soft places pass unnoticed. It is common practice in many mills to use the same gage and tension for all yarns.

Settings are for coarse yarns and allow fine ones to go through uncleaned. The result is poorer quality and lower production due to excessive stoppage on knitting machines and looms. To avoid this condition, it is necessary to have a setting for each count.

The individual settings can be determined by calculating $1.000 \div A$, where A is the number of strands of the yarn that can be placed side by side in 1 in. The formula, $26.1 \times \sqrt{\text{count}} = A$, is derived from the fact 26.1 strands of 1's cotton yarn, side by side, occupy 1 in.

Example: What setting is correct for 30's yarn?

$$26.1 \times \sqrt{30} = 143$$

$$1.000 \div 143 = 0.007 \text{ in.}$$

Tension to break out weak places usually is applied by running the yarn under small weights — the size of weights depending upon yarn count and single strand breaking strength. Weights should be such that strands are made to withstand tensions amounting to ¾ total strength.

The majority of weak and uneven places in yarn can be traced to several outstanding causes, including improper roll settings; drafts too high; use of large rings, small bobbins, and heavy travelers; twist which is not enough to prevent roving stretch; excessive tension on roving frames, drawing frames, and cards. Naturally, the greater numbers of these causes existing in a plant, the greater will be their effect upon the yarn. An additional, and very important cause of weak yarn is the uneven twisting caused by slack tapes and bands and improper lubrication of spindles on spinning frames.

Tension drafts on cards and drawing frames are dependent to some extent upon the condition of the surfaces of the calender rolls and coiler rolls and upon the bore of the trumpets. Rolls which have been in service for many years become grooved at the point where the roving passes between them and gradually lose their firm grip on the strand. The tensions thus affected are those between doffer and calenders and between calenders and coilers on cards, and between front roll and calenders on drawing. Grooved rolls should be repaired and replaced.

To avoid weakness resulting from abnormal stretch, the following tension drafts are recommended as maximum:

Cards—doffer to calenders—1.07
Cards—calenders to coilers—1.05
Drawing—f. roll to calenders—1.03

With good carding from clean, even laps, the bore of trumpets can be smaller and the sliver will be stronger. When carding is poor and the sliver is lumpy, properly bored trumpets cause a considerable loss in production due to the frequent clogging and choking. For finding proper diameters of trumpets (in sixty-fourths of an inch), the following formulas are helpful:

Cards—$1.2 \times \sqrt{}$gr. sliver del.
1st drawing—$1.3 \times \sqrt{}$gr. sliver del.
2nd drawing—$1.6 \times \sqrt{}$gr. sliver del.

Winding tension on roving frames must be watched carefully. The common tendency is to apply more tension than is necessary to build a firm bobbin and, in so doing, to stretch the roving. To prevent damage to the strand, the difference between winding speed of bobbin and surface speed of front roll should not exceed 2%, which is sufficient to build a firm bobbin and yet not enough to be dangerous.

In spinning, a ring diameter larger than 2.45 times bobbin diameter is likely to put too much tension on the yarn when winding on the empty bobbin and to cause excessive friction of traveler on ring. Using this ratio of

2.45, a 2-in. ring accommodates a 13/16-in. bobbin.

Spindle bands are of prime importance. Bands must be uniform in diameter and weight and must be tied on with proper tension. Slack bands slip, are slow in bringing spindles up to speed, and cause low or uneven twist in the yarn. Bands tied excessively tight result in a waste of power and greater wear on spindles and bearings. Bands should be stretched thoroughly before they are tied on so that further stretching will not take place on the frame. A properly pre-stretched band will run at very nearly the same tension until it falls off. Different diameter bands should be used with high, medium, and standard gravity spindles. However, it is possible to use the same band on all three and get good results if the proper band is used. On loads from 6 to 11 oz. (including weight of bobbin), a band made of 4.0 to 4.5 hank roving and measuring 1/10 in. in diameter will work satisfactorily. One of these bands 54 in. long weighs 90 grains; 77.7 bands weigh 1 lb.

Weak strands and weak places in strands due to slack bands, choked spindles, and defective bobbins can be reduced greatly by frequent inspections and corrections.

How to Overhaul Spinning Frames

Outline of steps followed by cleaners and overhaulers; division of duties

By WILLIAM STOCKTON

WORKERS WHO OVERHAUL spinning frames generally are divided into two groups: the cleaners who remove old grease, wipe away old oil, etc.; and the overhaulers and fixers who do the mechanical work. The following table shows the duties performed by these workers when a spinning frame is overhauled.

PREPARATION FOR CLEANING

A. Work done by cleaners.

1. Stop frame, remove yarn and roving, run roving out of rolls.
2. Remove clearers and scavengers, place under frame.
3. Mark right-hand ends of top rolls with chalk, using different colors for different rolls.
4. Drop roll weights.
5. Remove levers and saddles, place in bottom creel.
6. Remove front, pencil, and middle rolls, place in top creel.
7. Remove back rolls, place in bottom creel.
8. Remove tension rolls, place in top creel.
9. Turn cap bars back and remove apron bars, place across middle creel.

B. Work done by overhaulers.

1. Remove blinds.
2. Take out large front roll gear, draft gear, crown gear, and crown-gear rack bolt.
3. Remove front-roll bushing.
4. Loosen nuts on front-roll stand (head-end) that hold intermediate-gear rack.
5. Lift rail back out of way.
6. Remove bolts in head-end back-roll stand and lugs that serve as bearing cap.
7. Take off hank indicator.
8. Take out bolts in foot-end back-roll stand and lugs that serve as bearing cap.
9. Remove from roll stands all lugs that hold cap bearings down.
10. Place roll racks on frame, placing one each at second line of lever screws from head and foot ends, and spacing others between them at about 5-ft. intervals; fasten racks securely to lever screws.
11. Remove steel rolls in order front, middle, back, and place in respective notches in racks.

LINING AND LEVELING

A. Work done by overhaulers.

1. Level head-end crosswise.
2. Level foot-end crosswise.
3. Stretch wire through head-end and foot-end stands with 50 lb. tension, and set wire to gage at each end of frame.
4. Level frame lengthwise at head and foot.
5. Check center of frame with gage.
6. Check all samsons for firmness.
7. Set wire directly over center of gage at each end.
8. Check alignment of frame at each samson and level where necessary.
9. Set wire to stand gage at each end and adjust each stand to gage.
10. Remove wire.

B. Work done by cleaners.

1. Wipe all grease from roll necks.
2. Clean flutes thoroughly by lengthwise brushing with steel bristled brush.
3. Saturate roll stands with light oil, and wipe clean when oil has cut old grease.
4. Grease roll stands.
5. Replace apron bars and aprons.
6. Replace steel rolls.

C. Work done by overhaulers (following cleaners' work)

1. Adjust stands to face with rolls.
2. Check rolls, straighten steel rolls, and repair all loose or worn roll necks.

CLEANING FRAME AND REPLACING PARTS

A. Work done by overhaulers.

1. Clean head and head-end gears.
2. Check all gears, studs, and bearings, replacing all that are worn.
3. Put back in place the front-roll bushing, crown-gear stand, crown gear, and large front-roll gear.
4. Check all setscrews and nuts.
5. Put lugs back on roll stands and check roll settings.
6. Replace intermediate roll gear and draft gear.
7. Drop twist gear and leave it out.
8. Let cap bars down and put on lugs.

B. Work done by cleaners.

1. Wipe ends and middles of top rolls and replace them.
2. Replace saddles, hang weights, level weight levers.
3. Replace scavengers and cleaners.

PREPARING FRAME FOR PLUMBING OF SPINDLES

A. Work done by overhaulers.

1. Check cylinder and cylinder bearings, replacing worn bearing or journals.
2. Check lifting rods and lifting rod bushings, replacing or repairing all that are worn.
3. Wind traverse almost to bottom of stroke and adjust plug to ring.
4. Pack spindles that are not in center of ring and mark all packed spindles.
5. Check marked spindles again at top, centering them where necessary.
6. Recheck all marked spindles at bottom.
7. Make complete recheck on all spindles.

FINISHING UP FRAME

A. Work done by overhaulers.

1. Set thread guides, repairing or replacing guides where necessary.
2. Replace separators.
3. Replace twist gear.

QUESTIONS & ANSWERS

Reedy Cloth

Technical Editor:

We are having trouble with reedy cloth on light-sley warps, plain weave, 44 to 72 ends per in., reeded 2 per dent. What loom setting would be best for obtaining more cover and eliminating these marks? Should we attempt to reed the ends differently? (8814)

Whip rolls and sand rolls should be raised sufficiently for the warp line between these two points to pass through the upper half of the open shed. This increases tension on the bottom shed and decreases tension on the top shed, allowing the ends to spread.

The shedding motion should be so timed that the harnesses are level with the crankshaft on bottom center. In reed distance, this would place the reed 3 in. from the fell of the cloth with harnesses level. The shed should open just enough to allow the top of the shuttle to touch the top shed lightly.

It should be possible to eliminate reed marks on the constructions given, by proper loom settings. It is suggested the above settings be tried before changing to finer reeds on the lighter sleys.

Finishing Tweeds

Technical Editor:

We are inclosing three samples of tweeds, which we make of pure virgin wool. These samples are just as they have come from the loom, with the exception of having been washed and shrunk to approximately 60 in. width. We wish to have this cloth put through a finishing process, if necessary, and shall appreciate your advising us just what you think should be done to it to improve its marketability. (8811)

To put these tweeds in a finished condition acceptable to the trade, they should be subjected to a fulling operation. A typical fulling solution consists of 8 oz. of soap and 3 oz. of soda ash to each gallon of water. The soap and alkali can be put in a tank or barrel with sufficient water to cover them to a depth of about 6 in., and boiled for 2 to 3 hr. Next shut off the steam and fill the tank or barrel with cold water, stirring all the time it is being filled. Just enough of this solution should be added to the goods in the fulling mill to saturate them thoroughly, but not to get them too wet. This heavy soap will give the right cover for a tweed in a 15- to 20-min. run, and also will impart a good handle.

Next the fabrics are taken from the fulling mill and put in a cloth washer. Just enough cold water is added to work up a good heavy lather. Run in this for 20 to 30 min. and wash with cold water for 75 min. Extract and dry.

Shearing off the longest fibers back and face will enhance the appearance. Then press very lightly or simply roll up on a steam brush and leave on the roll until the fabric is cool.

Percent Yield and Waste

Technical Editor:

I would appreciate receiving information showing what is considered a good average yield on a botany yarn spun on the Bradford system; also normal percentages of waste made in the drawing, spinning, and twisting operations. If you have this information for both white and top-dyed yarn, I would like to receive it. (8805)

Waste made and the resultant yield of yarn from top depend upon many factors; namely, the selection of top or blend of tops; condition of top as to age, kind and percentage of oil, and moisture content; pull or draw of top—its spinning properties; actual set of drawing; drawing layout used; speeds on all operations; air temperature and relative humidity; machine temperature; skill of operatives and of drawer and spinner. This list of controlling factors should indicate the difficulty in determining what allowances must be made for waste in order that a required amount of yarn will be obtained. This is true even when the governing facts are available. It is very difficult to be specific regarding allowances for waste in drawing, spinning, and twisting.

Every mill through experience accumulates records of various lots of top processed into yarn. From these records the mill determines, for its own use, the allowances which must be made. These allowances are not infallible, because shortages and excesses occur, and knowledge of the facts indicates why. In one mill on lots from 30,000 lb. to 55,000 lb., total waste, top to yarn, varied from 7.72 to 14.38% and the mill allowance was 11%. Another mill could not obtain over 89% yield of ply yarn out of 1/4 blood top. Some of this top was sent to a commission spinner and the mill was amazed to receive 91 to 93% yield. The difference was due to the ability of the drawer, who knew his tops, his machines, and his operatives. In most mills, production is stressed and a certain maximum is allowed for waste. The experience of many men shows that when steps are taken to reduce causes of waste both production and quality are improved.

Regarding actual allowances, some mills allow 10% waste for colored and 8% for white yarns made from finer grades. The 10% would be roughly divided: 4½% in drawing, 4½% spinning, 1% in twisting. The waste may be roughly divided into soft waste, hard ends and sweepings. The latter item alone over a period of six months may fluctuate between 0.83 to 2.37% (actual mill records). Total waste can be divided into two classes, namely: avoidable and unavoidable. Unavoidable waste is due to mistakes made by other departments and also to conditions out of control of one's own department. Avoidable waste is that which can be eliminated by the proper correction of the faults which cause the waste.

The following table of allowances will be found useful as a starting point regarding waste allowances on wool, from top to finished yarn:

Bradford System—large lots

White—All grades.....
11% ply yarns for warp
9% single yarns for filling

Colored—3/8s and finer....10 to 12%
1/4 blood.....12 to 15%

French system—large lots

White—3/8s and finer.....9%
Colored.....10 to 11%

Small lots—all qualities

20 lb. to 100 lb.....30%
5 lb. to 15 lb.....40%
2 lb. to 5 lb.....80%
1 lb. samples.....200%

Worsted Yarn Costs

Technical Editor:

We will appreciate it very much if you will advise us what should be the cost of carding, combing, drawing, and cap spinning of 4/8s worsted yarn from low quarter blood stock? We are to deliver the above yarn in skein form for hand knitting. (8808)

Cost of sorting would depend upon the method used. Converting wool into top will cost about 12 c. per lb., based on 10% noil. Converting top into skeins of 4/8s will cost about 25 to 26 c. per lb.

COTTON SECTION—Chapter XVI—Continued

By IVAR MOBERG

Box Multipliers

THE PRECEDING INSTALLMENT closed with brief mention of one of two methods by which chains can be built for Crompton & Knowles four-chain multipliers. The other method would be to build the body chain for the entire length of the body and for the margin portion, while the border chain would be built for one border portion and called twice per blanket. Using this method, the body chain would first make the margin, then call the border chain for the first border. The border chain would go around once and then again call the body chain for the body portion. At the end of the body portion, the body chain would call the border chain for the second border. After going around once, the border chain would call the body chain for the margin and the cycle would be completed.

The chain draft for the first mentioned method is shown in Fig. C95. Before drafting either of these chains, make out a chart showing the performance of the various chain levers of the particular multiplier. This chart should be consulted during drafting until it is memorized. One type of such a chart is shown in Fig. C96.

The body chain is drafted first. A glance at the filling layout shows that the body stripes are 102 picks white from the first box, and 102 picks brown from the second box, alternatively. The first white stripe in the chain drafting method shown in Fig. C95 is on the border chain; hence, the first stripe on the body chain is the brown. Since the multiplying integer 48 for the body has been decided on, divide 102 by 48, which gives two with six picks remaining. This means that the first two bars would call for the multiplier chain to interrupt their movements until the multiplier chain has made one intervening revolution. Consulting the chart, we find that a roll in the third position will call the multiplier chain. Hence, we indicate this by placing X in the third position on the first and second bars of the body chain. These two bars have now a value of 48 picks each, or 96 picks together. As the layout calls for 102 picks we must place dashes, indicating tubes, on three bars following, since there are two picks on each bar. Therefore, 2+3=5 bars, which will take care of one body stripe. Consulting the chart indicates that a ball in the fourth position will call for one-cell lift, or the second box. As the first stripe on the body chain is brown from the second box, this is indicated by placing X in the fourth position on each of the five bars in the chain draft. Fill in with dashes, indicating tubes, all other blank positions on the chain draft.

The next stripe is 102 picks white from the first box. Here again the procedure of multiplying is repeated, and since the first box does not require a roll in any position the rest of the positions will be filled in with dashes.

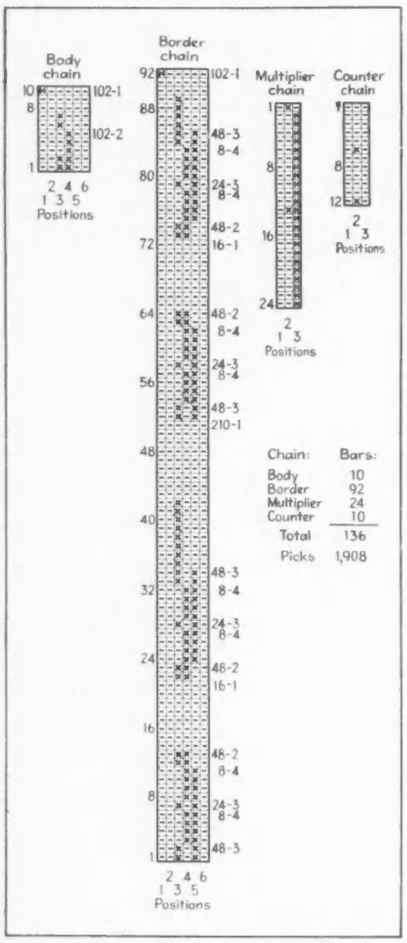


Fig. C95. Chain draft illustrating first method of building chains for four-chain multiplier

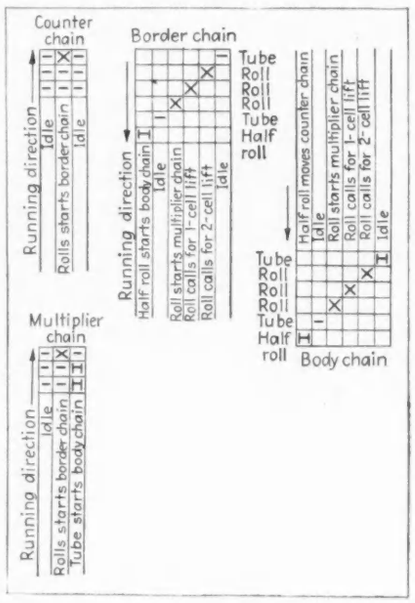


Fig. C96. Chart showing performance of various chain levers

The last bar must be built to call the counter chain. This is done by placing H, indicating a half roll, in the first position, in accordance with the chart. This half roll will move the counter chain one bar every time the body chain completes one revolution. The body chain will continue to run, moving the counter chain one bar for each revolution, until a ball in the second position on the counter chain passes under the counter-chain lever. This will stop the body chain with a half roll under the lever, and start the border chain. The bar carrying the half roll, whether it be on body or chain, must have nothing but dashes (tubes) in all the other positions. This is to give the chain in action full control of the levers, which are worked in conjunction by body and border chains.

As the layout calls for a repetition of the body stripes five times, a dash must be placed in the second position on the first five bars of the counter chain. On the sixth bar an X must be placed, so that the border chain is started on this bar. This would indicate a six-bar counter chain, but since this would not be long enough to go around the cylinder, it must be repeated a second time.

(*To be continued.*—Editor)

LOOMFIXERS' MANUAL

Wool Section—Chapter XIII

By EUGENE P. SCHREMP

Harness Motions

THE HEAD DRIVE used on Crompton and Knowles W2 and W3 looms is shown in Fig. W17. The head motion is driven from the crankshaft by means of an eccentric gear which is held on the crankshaft by two flat keys. These keys are tightened by two setscrews in the gear, and it is only the pressure of the keys on the shaft that holds the gear. This allows the gear to slip if the box or other parts get caught. When this happens, it is good practice to remove the gear and file any rough place on the shaft. The edges of the key should also be filed so that they will slip and not dig into the shaft. If this is done, a great deal of head-motion breakage can be eliminated.

The eccentric on the crankshaft meshes with a compound eccentric gear on a spindle which drives the upright shaft. There are timing marks on the high and low sides of these gears, and they must be properly meshed or they will not turn a complete revolution, but will bind at some point. After they are meshed, it is good practice to turn them by hand to make sure they are timed correctly.

The compound gear is in two parts, and either one can be replaced by removing the gear and taking out the capscrews which hold them together. To remove a compound gear, the upright shaft must first be taken off. If the loom is stopped at protection, with the first box just starting to lift to the second, a great deal of time can be saved in retiming the harness and box motion. Remove the top- and step-bearing caps. The bottom bearing should be removed by taking out the two bolts. There is a fiber washer at the bottom of this bearing which carries the weight of the upright shaft. The clutch fork pin should be removed by loosening the setscrew. The upright shaft can now be removed by pulling the top away from the loom. The double clutch take-up gear will slide off the end of the upright shaft. The clutch box gear must be held up or it will fall off, as there is no collar holding it on the shaft, such as was used on older type looms. Care should be taken not to damage the fiber washer used between the gear and the step bearing.

All W2 and W3 4x1 automatic looms have an internal gear in the clutch box. This gear is used so that the head motion cannot be locked on an odd pick. The clutch gear must turn two revolutions before it will allow the clutch to lock. The box chain must be built in multiples of two as there is a dead box at the magazine side. This prevents the weaver from locking the head motion on an odd pick and making a breakout.

Convertible looms do not have internal gears. When they are changed to run on 4x4 box work, it is necessary to lock the head motion on an odd pick. When they are running as automatics, the weaver should be instructed in this matter so that the breakouts will be avoided.

Internal gears must be properly timed or it will be impossible to lock the head-motion clutch. On each side of the internal-gear ring there is a cut-out part which allows the stud to drop through and lock the head motion. The internal-gear ring must be meshed with the gear on the center part of the clutch, so that the stud will drop through the center of the cut-out part. The small headless setscrew in the clutch slide, which is used to hold the stud, should be checked to see if it is tight. If it is allowed to become loose, the stud will work up and may break the clutch-fork casting.

At the top of the upright shaft there are two bevel gears which drive the chain and harness cylinders. Woodruff keys and setscrews are used on these.

The pin method is used for timing these gears. Half of a tooth on the upright-shaft gears is cut out so that the pin in the cylinder gear will mesh at this point. This times the cylinders so that the first tooth of the top- and bottom-box sections will engage the box vibrator gears at the same time. To test this, have a box chain with a riser under one lever and a sinker under the other. The gears should start to turn at the same time.

When replacing the upright shaft, the internal gears should be well oiled. The clutch assembly must be held together after the internal gear has been properly timed or it will slip apart and the timing will be lost. The top bevel gears must be so timed that the pins mesh in the teeth that are cut out. If the clutch-box gear is meshed in the same tooth of the compound gear as it was before removal, it will not be necessary to retime the head motion. This can be done by an experienced loomfixer, but usually it is easier to time the top bevel gears and mesh the clutch gear at any point and then re-time the head motion.

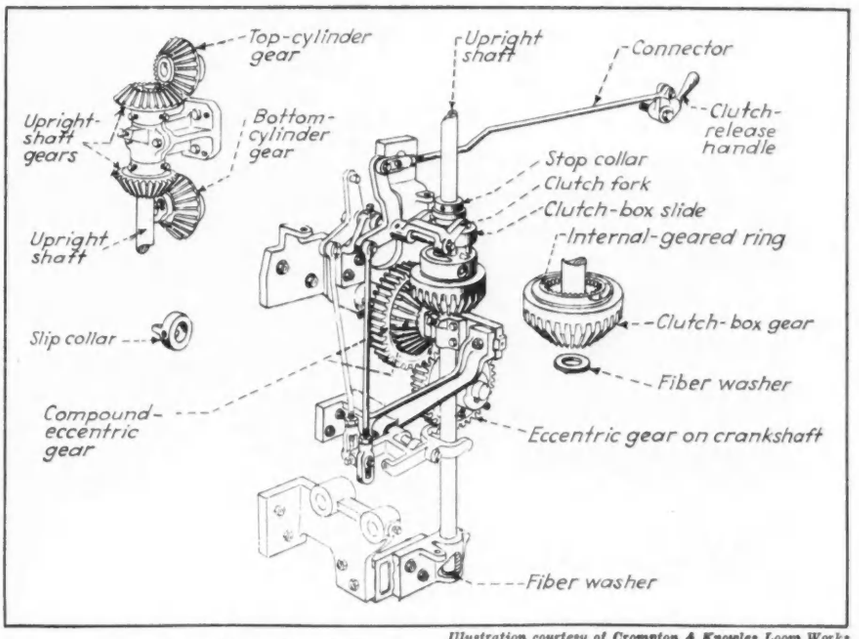


Illustration courtesy of Crompton & Knowles Loom Works

Fig. W17. Head drive used on W2 and W3 looms

STAPLE COTTON FABRICS

By JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

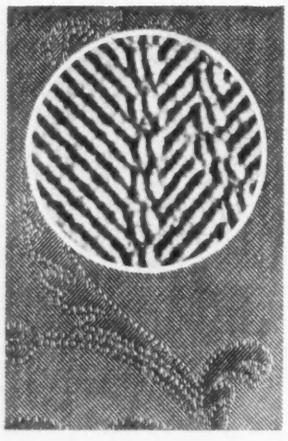
This sixty-second installment of Mr. Hoye's series discusses pyroxylin-coated fabrics

PYROXYLIN-COATED FABRICS are used as table cloths, wall canvas, imitation leathers, and luggage bag covers, and generally are more expensive and superior coated fabrics. The coating used is of a cellulose base, which gives a firm, pliable, and durable finish that does not easily crack or peel. The base fabrics used include medium- and coarse-yarn fabrics, such as broken twills, ducks, warp sateens, sheetings, drills, and twills. These are bleached, dyed, printed, and sometimes are napped on the back to add bulk and to prevent slippage when in use.

Table fabrics usually have a white or pastel-colored pyroxylin coating and are embossed with damask floral patterns or other designs suitable for table cloths. Because of their smooth but hard surface they can be cleaned easily with a damp cloth. Base fabrics used are soft-filled sheetings and broken twills. They generally are napped on the back.

Wall canvas patterns include plain or metallic colored backgrounds with contrasting lacquer overprints, also embossed patterns suitable for living or bedroom wall covering. Light-weight sheetings and print cloths are used for the base fabrics.

Pyroxylin coated printed percales are largely used for kitchen chair seats and infants' nursery items, such as play yard pads, high seat pads, and table covers. The patterns and colorings show clearly through the transparent pyroxylin.



Pyroxylin-coated wall canvas with embossed metallic ground: base fabric—50-in. sheeting, 44x40, 5.50 yd. per lb.

Embossed two-tone pony grain leather cloth: base cloth—54-in. broken twill, 76x56, 1.32 yd. per lb., napped on back

Imitation leathers are pyroxylin coated fabrics based on heavy-yarn cloths, which include drills, broken twills, and warp sateens; they are produced with leather and reptile skin effects by coloring and embossing. The designs consist of various grains of animal skins such as seal, shark, calf, buffalo, sheep, cow, and pig; and of geometrical designs or texture patterns, such as basket weave or pique. Imitation leathers are used for upholstery of furniture and covers for chair cushions, bridge tables and table pads. Other imitation skin effects, such as crocodile and alligator, are used for shoe uppers and women's pocketbooks. The base fabrics are piece dyed, printed, given colored pyroxylin coatings, and then embossed. The heavier fabrics often are given a napped finish on the back.

Base fabrics used for coating:

Sheetings—
52 in., 48x48, 3.85 yd. per lb.
60 in., 48x48, 3.00 yd. per lb.
60 in., 42x48, 1.92 yd. per lb.
60 in., 42x44, 2.25 yd. per lb.

Print cloth—
39 in., 80x80, 4.00 yd. per lb.

Drills—
30 in., 68x48, 2.50 yd. per lb.
37 in., 68x40, 3.95 yd. per lb.
52 in., 68x40, 2.38 yd. per lb.
54 in., 68x40, 2.00 yd. per lb.
56 in., 68x40, 1.93 yd. per lb.
59 in., 68x40, 2.25 yd. per lb.
59 in., 68x40, 1.85 yd. per lb.
59 in., 68x40, 2.73 yd. per lb.
37 in., 68x44, 2.75 yd. per lb.
37 in., 68x44, 2.35 yd. per lb.

Molcskin—
58 in., 68x144, 1.40 yd. per lb.
58 in., 76x 72, .97 yd. per lb.

Warp Sateens—
53 in., 96x64, 1.32 yd. per lb.
54 in., 96x60, 1.12 yd. per lb.
54 in., 96x64, 1.32 yd. per lb.
54 in., 85x84, 1.30 yd. per lb.

4-Leaf warp twill—
58 in., 74x54, 1.36 yd. per lb.
59 in., 74x42, 1.65 yd. per lb.

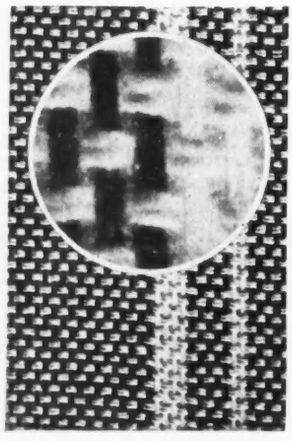
Broken twills—
54 in., 76x56, 1.32 yd. per lb.
56 in., 88x56, 1.14 yd. per lb.
56 in., 88x56, 1.10 yd. per lb.

STRIPED LUGGAGE FABRICS are specially-woven colored-yarn cotton fabrics coated on one side with a transparent pyroxylin finish through which the background and colored stripings show; a high-luster Schreiner finish sometimes is given the coated fabric. Luggage fabrics usually are basket weave; they also are twill-woven with white and colored yarns. Single or ply carded yarns are used, and most of these are dyed various shades of tan or brown; black, white, and mock twist yarns also are used. Warp yarns generally are colored, but natural yarns also are used; filling yarns often are natural but may be black, mock twist, or colored. Stripes of contrasting colors generally are woven in the warp; in some cases no colored stripes are used. Weights run from 2.00 to 4.50 yd. per lb. for 36 in.

These coated fabrics are used for light-weight suitcases, radio cases, zipper bags, trunks, and phonograph and typewriter case covers. Sometimes, because of their light weight and strength, they are called "airplane luggage" cloth.

Examples of constructions are:

38 in., 76x36, 2.81 yd. per lb., 2/2 twill (4 ends woven as 1, 2 picks woven as 1, 2 stripings to the width);
44 in., 74x38, 2.46 yd. per lb., 2x2 basket weave, 2 stripings to the width;
60 in., 50x40, 2.00 yd. per lb., 2x2 basket weave, 2 stripings to the width;
60 in., 72x36, 1.68 yd. per lb., 4x2 basket weave, 3 stripings to the width.
Yarns are 12s to 18s single and 9/2 to 14/2 ply.



Clear pyroxylin-coated striped luggage fabric: base fabric—36-in. 2x2 basket, 44x36, 3.22 yd. per lb.

FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

Two textile chemicals, one a penetrating and lubricating agent known as Prestabit Oil C, and the other a detergent and wetting-out agent designated Igepon T Gel, are described in circulars G-269 and G-270, respectively, issued by General Dyestuff Corp.

Defense activities in which textile mills are taking part are described in an article titled "How Near Is Defense?" published in the June issue of *Parks' Parables,* issued by Parks-Cramer Co.

Shortages of sizing material as a result of the war and of defense activities is discussed in the lead article of the July-August issue of *Rayon Warp Sizing Specialist,* published by Charles B. Johnson Machine Works.

Dyeing of military fabrics, effect of gas fumes upon dyed acetate rayon, perspiration and injuries due to perspiration, and dyeing cotton, linen, and wool goods with indigo are the subjects of articles contained in the June issue of *Dyestuffs,* published by National Aniline & Chemical Co., Inc.

Non-metallic materials of several types, which may be used in numerous machine and parts applications to take the place of materials now becoming scarce, are discussed in Bulletin GF-10 prepared by Continental-Diamond Fibre Co.; bulletin pictures many such parts and gives information on characteristics of the materials and standard forms and sizes which are available.

Loom building for 125 years is the subject of the interesting anniversary issue of *Cotton Chats,* published in June by Draper Corp.

Twister installations in a new silk and rayon yarn plant are pictured and described in the June issue of *Atwood Twists,* offered by Atwood Machine Co.

Textile machinery for woolen, cotton, silk and rayon, and finishing plants, which is available from Birch Bros. Inc., is the subject of two handy hang-up cards which have been prepared by that company.

Tenter applications for its Moist-o-Graph equipment for measuring moisture content are the subject of Bulletin 93-5, which is being distributed by Brown Instrument Co.

Selection of motors in types from $\frac{1}{6}$ to $\frac{3}{4}$ hp. for light industrial use is the subject of a table listing types and sizes, where to use, features and characteristics, power supply, and speeds: designated A-30403 and offered by Westinghouse Electric & Mfg. Co.

A new shear is briefly described in the June issue of *Clothroom Spotlight;* features include the fact that fabric is sheared in vertical position, separate motors have been placed on all revolvers, and all four cloth rests are adjusted simultaneously; distributed by Hermas Machine Co.

Dyeing formulas for spruce green wool uniform fabrics being purchased by the government are the subject of Bulletin 594 prepared by Calco Chemical Div., American Cyanamid Co.

Cements for waterproofing and patching concrete walls and floors are described in an illustrated folder issued by Smooth-On Mfg. Co.

Moisture determination by drying is the subject of an illustrated folder which describes equipment available, gives specifications, etc.; issued by Harry W. Dietert Co.

"How Inventors Can Aid National Defense" is the subject of information bulletin No. 2 which gives information on the National Inventors Council, a central governmental clearing house to which can be submitted inventions and suggestions that might prove valuable to national defense; offered by U. S. Department of Commerce, National Inventors Council.

Strapping for fastening shipping containers of various sorts is described in issue No. 3 of *Acme Process News;* an interesting and unusual use shown is steel strapping material used in making hoop skirts; distributed by Acme Steel Co.

Ball Bearings for forged steel are the subject of the 15th edition of a handbook which lists principal types, gives dimensions, capacities, tolerances and mounting fits; contains data to help simplify selection, etc.; prepared by New Departure Div. of General Motors Corp.

Designing V-belt drives for maximum efficiency and long life is the subject of an illustrated folder titled "Do You Save by Underbelting" designated V-1400-M15, and prepared by Worthington Pump & Machinery Corp.

Timestarters in remote-controlled types for constant-speed d.c. motors up to 10 hp. are described in a 4-page leaflet, No. 8512.1, prepared by Westinghouse Electric & Mfg. Co.

Function of lubricants in reducing breakdowns, maintaining accuracy, assuring minimum wear, and reducing power waste, is described in the July issue of *Research Illustrated,* published by E. F. Houghton & Co., Philadelphia, Pa.

Use of Neoprene in manufacture of woven hose is the subject of an article in the July–August issue of the *Neoprene Notebook,* published by E. I. du Pont de Nemours & Co., Inc.

Oven and dryer construction using Marinite, an easily workable fireproof structural panel material, is discussed in Bulletin DS Series 585, issued by Johns-Manville Corp.

Rotary pumps with double-helical gear rotors said to give maximum pumping efficiency are pictured and described in Bulletin W-483-B1 of Worthington Pump & Machinery Corp.

Pneumatic controller accessories are covered in Bulletin 89-14, which contains dimension data, schematic diagrams, etc.; distributed by Brown Instrument Co.

Belting of the cord-ply type, its construction and advantages, and methods of making endless belts are discussed in Catalog Section 2140 issued by B. F. Goodrich Co.

Protective fences of the chain-link type are the subject of a 40-page data book showing typical installations and giving specification data in composite form; offered by Anchor Post Fence Co.

Porous bearings, their properties and uses, and details on correct methods of installation are given in a revised catalog which also contains size tables; prepared by Keystone Carbon Co.

Steel belt lacing for joining or repairing machine and convevor belts is the subject of Bulletin 731, announced by Bristol Co.; included is information on typical applications, types and sizes available, and prices.

Selection of lubricants for a wide variety of machine tools is discussed in Vol. VIII of the *Service Factor;* included is a photograph of cotton looms in a southern mill; published by Sinclair Refining Co.

Polarizing microscopes for textile and other industries are described and illustrated in a 25-page catalog being distributed by Spencer Lens Co.

A compressor selector designed to indicate the correct size and type for any specific job after one simple setting has been developed by Quincy Compressor Co.

Oil purification by means of a permanent-magnet Ferro-Filter, said to be particularly applicable on machines equipped with circulating oil systems, is discussed in Bulletin 16A issued by S. G. Frantz Co., Inc.

Desuperheater control systems are described in Bulletin 29-33 which contains schematic diagrams, data on when and where applicable, and suggestions for most effective use; issued by Brown Instrument Co.

"Industrial San Bernardino" is the title of an illustrated booklet highlighting industrial opportunities of this city to manufacturers considering Pacific Coast locations for manufacturing plants; prepared by Industrial Committee, San Bernardino Chamber of Commerce.

NEWS OF THE MONTH

New Wage Orders

A 36¢ minimum wage order was issued for the seamless hosiery industry to be effective Sept. 15, General Philip B. Fleming, Wage-Hour Administrator, announced on July 21. The rate was recommended in a unanimous vote April 8 by a seamless hosiery industry committee, representing employers, employees, and the public. This industry has been operating under a 32½¢ minimum since Sept. 18, 1939. The 32½¢ minimum was established in the same order that placed the full-fashioned hosiery industry under a 40¢ minimum, which is still in force.

An industry committee has been appointed by General Fleming for the knitted outerwear industry. It will meet in Washington Aug. 19 to reconsider the 35¢ minimum under which it is now operating. The committee can recommend any minimum wage up to 40¢. G. Allan Dash, Jr., of the Wharton School is chairman. Other "public" members are: Mary Barnett Gilson of the University of Chicago; Philip Taft of Brown University; Frank de Vyver of Duke University; and Paul F. Brissenden of Columbia University. For employees: David Dubinsky; Jacob Halpern; Joseph Schwartz; Abraham W. Katovsky; and Louis Nelson—all of ILGWU. For employers: Rudolph H. Wyner of Shawmut Woolen Mills; Ingram Bergman of Bergman Knitting Mills; Arthur J. Reinthal of Bamberger-Reinthal Co.; Irving J. Slotoroff of Sinclair Knitting Mills; and Edgar W. Stewart of Pacific Knitting Mills.

Price Ceiling for Burlap in Preparation

OPACS was preparing to put a ceiling price on burlap as this magazine went to press. Leon Henderson, price administrator, said that prices have increased over 100% during the past year. About 86% of our burlap, nearly all of which is imported from India, is used by farmers, who are thus penalized in buying bagged supplies and in buying bags in which to sell their produce. Henderson said the rise in prices is widely attributed by the trade to a shortage of shipping space. He admitted that Calcutta quotations have moved up, but contends that the increase is extensively based on shortage of supply. Leading men in the burlap trade met in Washington to discuss the matter with Henderson.

Callaway Defense Broadcast

The part the textile industry plays in national defense was dramatized July 5 when the National Broadcasting Co. took its microphones into the Callaway Mills, La Grange, Ga. The program was one of a series presented under the auspices of the National Association of Manufacturers. Interviews were heard against the noise of operating machinery, both workers and executives being among those interviewed.

American Woolen Nets $4,905,625 in Six Months

American Woolen Co. earned a net profit of $4,905,625 for the six months ending June 30, 1941, after depreciation and provision for estimated federal income and excess profit taxes. This compares with net profit of $317,852, after all charges, in the same period of 1940. Net sales for the first half of this year were 128.8% over corresponding period last year, and were the greatest for any similar period since 1923. The company's business was divided about equally between government and civilian orders.

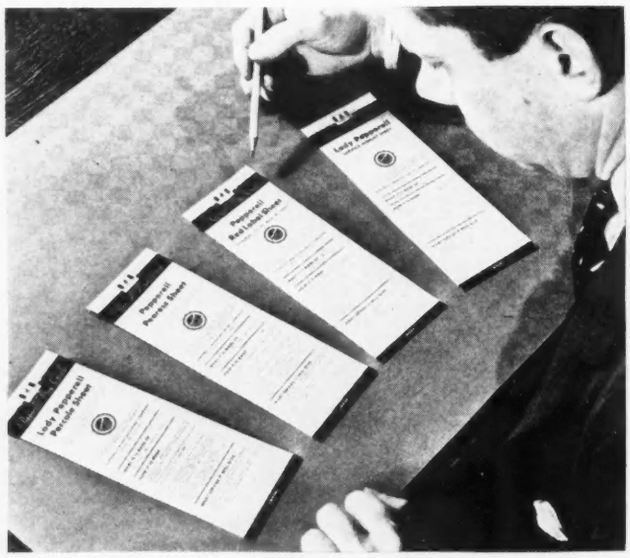
Full-Fashioned Group to Work with AFHW

The American Federation of Hosiery Workers has given notice of cancellation of the two-year contract at its expiration Aug. 31, 1941, to the Full-Fashioned Hosiery Manufacturers of America, Inc. This latter organization at a recent meeting went on record as approving a uniform contract and as approving the policy of negotiating collectively through the association. The union will negotiate through its national executive board. The union at its annual meeting voted to demand a 15% wage increase.

Minimizing Men's Wear Inventory Losses

If a wool-textile mill sells men's wear fabrics on blanket orders or reservations, it should limit this method of selling to those buyers whose volume, manufacturing operations, and financial integrity warrant their being accorded the privilege, states a study recently completed for the Textile Foundation by the Wharton School, University of Pennsylvania.

This report, Minimizing Inventory Losses in the Men's Wear Division of the Wool-Textile Industry, is the second of a series of seven, which Wharton has prepared for the Textile Foundation under the general title Inventory Policies in the Textile Industries. Others in the series deal with inventory management in the denim, cotton-fine goods,



PEPPERELL "BUY-GUIDES" will hereafter accompany various grades of bed sheets made by Pepperell Mfg. Co. This latest development of informative labeling stresses the fact that the items have been tested by the Better Fabrics Bureau. They tell what the product is made of, how it is made and what service it will give. There is also information on how to care for it, how to pick the right size, what size to use for pillowcases, the signs of a good sheet and how many the average household should have.

LATTICED FLOWERS, screen-printed on Celanese rayon jersey, distinguish the bra suit worn by Mitzi Strother. Miss Strother, chosen "Miss Florida", will participate in the coming fall pageant of 48 States, for the title of "Miss America".

rayon-weaving, cotton print-cloth, and full-fashioned hosiery industries. The final number will summarize the six industry reports and discuss recent inventory trends in the production and distribution of textiles.

Copies of the report Minimizing Inventory Losses in the Men's Wear Division of the Wool-Textile Industry, as well as others in the series, at 50¢ each, may be obtained from the Textile Foundation, Industrial Bldg., National Bureau of Standards, Washington, D. C. The Foundation is also accepting orders for the entire series at $3.00, individual reports to be mailed on publication.

Plans for Annual Meeting of A.A.T.C.C. at Pinehurst

The annual meeting of the American Association of Textile Chemists and Colorists will be held at Pinehurst, N. C. Oct. 31 to Nov. 1, with headquarters at the Carolina Hotel. Technical meetings are scheduled for the afternoon of Friday, Oct. 31 and entertainment for Friday night. Saturday morning, Nov. 1, will be devoted to technical meetings, the afternoon will be given over to golf, tennis, skeet shooting, bingo, bridge and sight-seeing trips, and on Saturday night will be held the association's annual banquet.

The general chairman of the committee in charge of the meeting is Samuel L. Hayes, Ciba Co. D. S. Quern, Becco Sales Corp., secretary of the Piedmont Section A.A.T.C.C., is chairman of the reservations committee. A R. Thompson, Jr., Ciba Co., is chairman of the publicity committee.

First Palm Beach Sale in Seven Years

The Goodall Co. authorized the general sale of Palm Beach clothing items which began all over the country on July 23. The basic Palm Beach suit, which previous to sale had been selling at $17.75, was cut to $13.95. The last previous sale by this company was back in 1934.

The reason for the sale was said to be the feeling that now was a propitious time for a substantial clean-up of Palm Beach stocks, clearing the decks for the 1942 buying season. In other quarters there were believed to be contributing causes such as constriction of the export market, rising interest in tropical worsted suits and other types of clothing, etc. Palm Beach tropical worsted suits retailing at $25 and $32.50 were not included in the sale event.

Southern Garment Men to Convene

The Southern Garment Manufacturers Association will hold its annual convention Aug. 24 to 27 at the Atlanta-Biltmore Hotel, Atlanta, Ga. A number of textile firms which have affiliates in this field are active in the membership. W. J. Vereen, of Moultie, Ga., is president of the association. The home office of the association is at Nashville, Tenn.

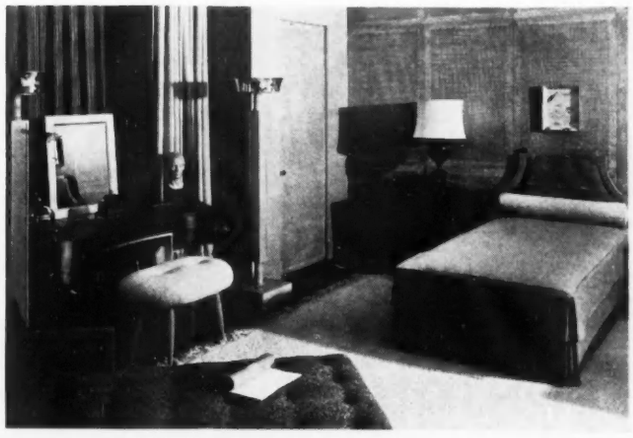
War Is Hell

From London:—"A bare-leg beauty bar where women's legs are sprayed with rainproof sun tan lotion at 3d (about 5¢) a leg opened recently. The lotion provides a substitute for silk stockings, thereby saving the women's clothing coupons."

From Washington:—"Grasshopper 'tobacco juice' is slowing up one phase of defense preparations. The Reliance Mfg. Co., which makes parachutes, said last month that many of them had been ruined in drop-testing. They landed in grasshopper-infested fields and the insects spat upon them, causing small holes to appear in the silk. These holes cannot be repaired," the item added.

Urges Stabilizing Rayon Fabric Prices

Burlington Corp., Greensboro, N. C., has announced a policy of "conscientious cooperation" with the Federal Government in its efforts to combat the present inflationary tendencies. The announcement states plainly that Burlington has no intention of following inflationary price trends which have been evidenced by certain rayon fabrics. "To discourage speculation," affirms the announcement, "we intend to shorten our forward selling period and keep our selling prices on a basis of cost plus a fair margin of profit—regardless of the opportunities for excessive prices in the hectic market of the moment. . . . In the interest of the textile trade and the country as a whole, and in our desire to see as stable a market as possible, we recommend this policy to all rayon manufacturers and converters."



THE ROOM HERE SHOWN is one of a group displayed by Lord & Taylor, New York, from designs by William Pahlmann, who has made a specialty of designing rooms outfitted throughout with wool fabrics. In this room the draperies are of soft wool material in oyster gray; beds are upholstered and have tailored covers of the same material in chartreuse; the double chaise lounge is upholstered in black and white mixed tweed; the rug is of wool chenille with 6-in. fringe of cream color.

CLINTON

STARCHES

FOR ALL
TEXTILE PURPOSES

QUALITY
AND
SERVICE

CLINTON
COMPANY

CLINTON — — IOWA

Nylon Bearings

Already established in the hosiery, textile and bristle industries, Nylon, du Pont's test-tube fiber, continues to invade new fields. Nylon bearings for machinery is the latest development. The bearings are said to require no oil for lubrication, to offer less friction to rotating shafts, to carry heavier loads than the conventional bronze or brass bearings. Bearings have been made from synthetic resins before, but they had to be reinforced with a fabric "filler" and lubricated with water.

Philadelphia Manufacturers Golf

More than 300 attended the 15th Annual Outing and Banquet of Phila. Textile Mfrs. Association, held recently. Joseph Schmitz, Jr., Universal Dye Works, had first low net golf score, and thus won a leg on the trophy donated by Scholler Bros. Marshall V. Moss, NoMend Hosiery, Inc., won trophy put up by Textile Machine Works for best score among hosiery men only. Arthur B. Otto, Johnathon Ring Co., president of the Association, presided at the dinner. Congressman Dewey Short, of Missouri, was the principal speaker.

Industrial Specialists Wanted

Trained personnel in every branch of industry, science and business is being called to Government service in connection with the national defense program. Individuals who know industrial methods and processes from first-hand experience are needed to contribute their part to this expanding enterprise. The United States Civil Service Commission, Washington, D. C., has recently announced an examination for industrial specialists positions which pay from $2600 to $5600 a year. Information and application forms may be obtained at first and second-class post offices or direct from the Commission at Washington. Economists with experience in research and analysis are also wanted.

That Tight Rayon Situation

Of all the domestically-used textile fibers, rayon yarn has the tightest supply situation at the present time, states the current issue of the *Rayon Organon*, with producers allocating shipments. Shipments aggregated 220,000,000 lb. during the first six months of 1941, a new all-time record which compares with 186,000,000 lb. for the first half of 1940, and 162,000,000 in the first half of 1939.

The operating capacity of the industry at the present

THIS "LIBERTY BELL" print has been designed and made by the New Jersey WPA Art and Craft Project for dressing up the barracks used by the selectees. The fabric is printed by the screen printing method and used for drapes, hangings, etc. There are two other patterns, one an abstract design dramatizing "Communication", and the other an attractive floral pattern.

TEXTILE MILL SIDELIGHTS—No. 25

"Yeah, I know it's odd Boss—but when my wife says it's my turn to watch junior she means business!"

time, according to the *Organon*, is 37,200,000 lb. monthly and should reach a total of 38,000,000 lb. monthly before the end of 1941. This is a substantial increase as compared with a capacity of 32,500,000 lb. for the second quarter of 1940 and 25,000,000 lb. for the second quarter of 1939. Stocks in the hands of producers continue at a low level, totaling 4,300,000 lb. on June 30, equal to half a week's supply at the current rate of shipments, compared with 12,800,000 lb. held on June 30, 1940, and with 33,300,000 lb. on June 30, 1939.

Worsted Machinery in Experimental Rayon Unit

A standard Bradford drawing and ring spinning layout for experimental production of worsted yarns has been installed by American Viscose Corp. in its Textile Unit, at Marcus Hook, Pa. This is understood to be the initial step toward a complete woolen and worsted system. The newly installed equipment includes a set of gill boxes, draw frames, and ring spinning frames. The gill boxes are of Prince Smith, Ltd., construction and were specially rebuilt to the intersecting principle by American Gill Screw Co. The drawing frames are reconditioned machines of Prince Smith, Ltd., construction. The ring-spinning frames are the newest Whitin BW large-package vertical spinners with one-shot lubrication and variable-speed drive. All equipment is of standard design except for extra features incorporated for adaptability in controlling speeds, tensions, etc.

TEXTILE CALENDAR

The First Southeastern Personnel Conference, Duke University, Durham, N. C., Sept. 5 and 6, 1941.

American Association of Textile Chemists & Colorists, annual meeting and convention, Carolina Hotel, Pinehurst, N. C., Oct. 31, and Nov. 1, 1941.

18th Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 1 to 6, 1941.

There are 24 rows of **MILLER FLUORESCENT TROFFERS** recessed in the plaster ceiling of this 70'x80' room, providing Austin draftsmen with cool, well-distributed, shadowless light to aid their vital work.

Here in The Austin Company's new drafting room . . . men who are speeding the building of America's defense plants work *better, faster* under MILLER FLUORESCENT TROFFERS*. When engineering "experts" select MILLER lighting for their own use, what more need be said!

* **MILLER TROFFERS**—a proven and guaranteed Continuous Recessed Fluorescent Lighting *System*, ideal for offices, banks, drafting rooms, commercial establishments and many types factories with acoustical or other hung ceiling constructions. Write for helpful new Bulletin 2G.

MILLER OFFERS A COMPLETE LINE of incandescent and fluorescent lighting equipment, including the well-known IVANHOE "50 FOOT CANDLER" (RLM Continuous Wireway Fluorescent Lighting System unexcelled for modern textile mill lighting), and backed by almost 100 years of commercial and industrial lighting specialization. There is an answer to *your* problems in this specialized, *unbiased* lighting service.

THE MILLER COMPANY
MERIDEN, CONN.
Pioneers in Good Lighting Since 1844

For level dyeing

DESIZE WITH EXSIZE

Successful mills everywhere are removing starch sizes thoroughly, quickly, and economically with Exsize. Cloth is thereby best conditioned for bleaching and level dyeing. The cost is nominal.

Our laboratory facilities and practical field men are available to help you with desizing problems.

PABST SALES COMPANY
CHICAGO, ILLINOIS

Warehouses at New York, and Textile Warehouse Co., Greenville, S. C.

over a wide range of operating conditions. The original installation in the Textile Unit was described and illustrated in these columns in August and September, 1940.

Stresses Its Yarn As Basic Material

American Bemberg Corp. is issuing a new series of mailing pieces for retailers, converters and manufacturers, designed to emphasize to the trade that Bemberg rayon is a basic material and appears in merchandise sold in a wide variety of price brackets. The first brochure dramatizes a brick as something from which mansions and cottages may be built. The second considers glass as a material which may be used in the world's largest telescope costing in the millions of dollars and also in the boy scout telescopes available for a dollar or two.

Power Restrictions Lifted

It was good news to the textile mills of Georgia when all restrictions on the use of power were lifted on July 23. As noted in these columns last month, the Georgia Power Co. found it necessary to curtail approximately one-third of the power furnished the industries of the State for the three weeks following June 16. However, modifications were made possible by heavy rains beginning about July 4, and finally all restrictions were lifted July 23.

The curtailment was made necessary, at the time, by the worst drought experienced by the Southeast in the last 37 years. At the same time an ever-increasing demand for power indicated that the total consumption for 1941 would be 25% above 1940, which was a good year for power sales.

This and That

A sock novelty has appeared on the Pacific Coast under the name "Gaitees". The item is designed by Desmond's, Los Angeles, and sold by them. It is a substantially-knit sock-like product, but lacks heel and toe having merely a small band of material under the instep. It is to be worn over the sock but inside the shoe and the bottoms of slacks may be folded and tucked inside, somewhat in the nature of the short puttees of the army. The distributors offer gaitees as useful for gardening, cycling, hiking and rainy-day walking.

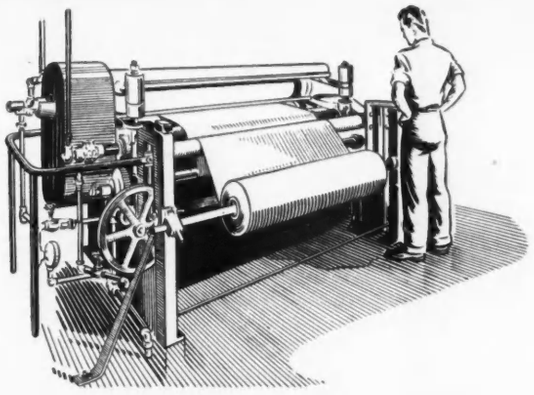
Botany Worsted Mills has signed what is believed to be the first television contract in the textile-garment industry. Programs will begin Sept. 1 over Station WMBT, the main television station of the National Broadcasting Co. and will run thirteen weeks. Merchandise will be shown on each program which will be built around a weather report.

Adhesive tape with a wool-felt backing has been developed recently by Industrial Tape Corp., New Brunswick, N. J. The tape is available for various industrial uses in four different widths and in a range of colors.

A method for gas-proofing woolen uniforms, which will be used for treating clothing for members of the British Army and Air Raid Precaution workers, was announced by the Wool Industries Research Laboratory of England.

Japanese experimenters are currently reported to have extracted proteins from fish meat and made fibers therefrom. The fibers are said to have some of the characteristics of wool. Yoshio Kami, Shinko Rayon Co., Osaka, is in charge.

Textile and Clothing Division of the Bureau of Home Economics, Department of Agriculture, is compiling a dictionary devoted to cotton and lisle full-fashioned hosiery.



Finer crepe effects with new Embossing Calender

"The crepe effects we are getting on artificial silk are the envy of our competitors.

"Never before have we achieved such excellent embossed finishes.

"And here's why . . .

"We have installed a new Butterworth 2-Roll Embossing Calender equipped with air cylinders for applying pressure at slight extra cost. As a result, pressures are absolutely true and even. The finish on our merchandise is always the same.

"We have found air cylinders for applying pressure better than microset and a decided improvement over hydraulic. Pressures are recorded while the machine is operating.

"A special steam box at the entering side of the Butterworth Calender gives artificial silk the right *start* for a good *finish*."

Consider the beneficial effects this *one* modern machine is exerting over the affairs of this plant.

Orders for the most difficult embossed finishes are eagerly sought. There is confidence that the exact finish can be supplied, that deliveries can be met—that the cost of production will come within the figure on which quotations were based.

Don't wait to modernize your entire equipment at one time. Put in a modern machine wherever and whenever you can. Each will prove itself a highly worthwhile investment in its own right and a step toward having a 100 per cent modern plant with which to face after-the-boom competition.

For 121 years we have specialized in designing and building machinery for the wet end of the Textile Industry. Our salesmen are qualified to advise you as to the kind of machines and kind of plant arrangement which will increase quality, up production and reduce costs. Consult us freely without obligation.

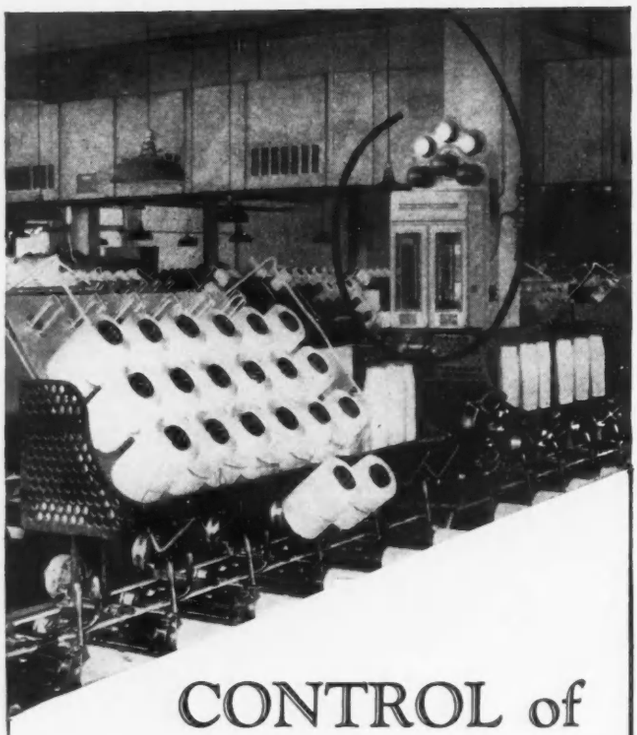
H. W. BUTTERWORTH & SONS CO.
Phila., Pa., Serving the Textile Industry Since 1820.
Offices: Providence, R. I. and Charlotte, N. C. In Canada—W. J. Westaway Co., Hamilton, Ont.

***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

*Proved by Research

Butterworth



CONTROL of
Certified CLIMATE

The sensitive Psychrostat calibrates itself. Self contained thermometers (laboratory type) audit its action for you.

Surprising what a Psychrostat may be hitched up to do. Turns humidifiers on or off. Sprays (in Central Stations) on or off. Fresh air or recirculating dampers on or off.

A two-stage Psychrostat actuates humidifiers sort of double duty; light in winter, heavy in summer. Another stage may regulate temperature—right in the same instrument.

And now a new Psychrostat regulates the speed of Central Station fans. Makes Central Station Air Conditioning less expensive to operate.

In Parks Certified Climate installations you get all the experience that went into the development of this versatile control of Air Conditioning.

Parks-Cramer Company
Certified Climate
Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

The first of a planned four volumes will probably be completed for the fall and winter season. Pictures one and one-half times normal size will be shown of the fabric of each stocking and design sketches will be given showing the stitch arrangement for each swatch. Most of the items will be in mesh, but including a wide variety of patterns.

A committee formed to work out a gradation chart which would decrease the number of wool fiber grades below present government standards consists of Russell H. Harris, American Woolen Co., Marland C. Hobbs, Arlington Mills, and Robert P. Hackett, Nicholas & Co.

Few Textiles Now Freely Available

Cotton goods trading opened up gradually after Henderson raised ceiling prices on gray goods, but mills were selling only for nearby and small yardages were available. Finished goods prices rose under pressure of demand. Percales closed July at 16⅜¢ for 80 squares. Work-shirt chambrays were at 12½¢ for 36-in., 3.90-yd. Pillowcases and woven tickings were advanced. Although cotton almost reached 18¢ during July it receded fractionally on the price-fixing bill in Congress.

Wool goods manufacturers are continuing the record-breaking operation of recent months, and additional wool-goods business for the Army placed in July made the situation on consumer goods tighter than ever. Although supplies of wool seem adequate, that market was strengthened by the trouble with Japan since an outbreak in the Pacific would doubtless curtail shipments from Australia. Some mills are already sold up on consumer goods for spring.

Silk quotations came to an end on July 25 after sharp advances. Crack XX 78% went to $3.62. The exchange has not re-opened since and stocks shortly thereafter were frozen. Ceiling prices are in prospect, but doubtless no silk can change hands at all without some form of priority order and free trading in this commodity is probably out for the duration. Hosiery mills, users of 90%, began shutting down before the end of July and are making plans to shift over to synthetics. Silk importers invoked the "war clause" in contracts for their cancellation.

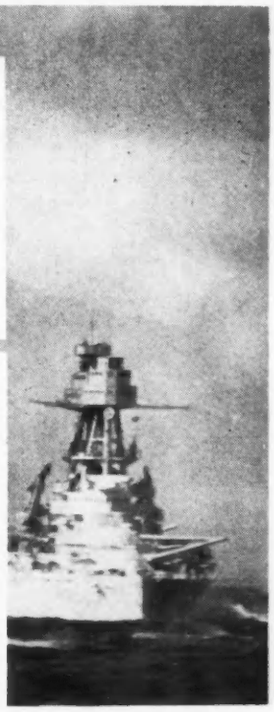
Rayon yarn producers continued current prices when they opened books for September deliveries. Following the freezing of raw silk stocks it seemed likely that rayon production would be allocated in the knitting field as a silk substitute to reduce the imminent unemployment there. Weavers took steps to protect their interests, and as August began Washington meetings were in progress to settle the various matters at issue. Labor interests urged weavers to return from six-day operation to five, thus releasing rayon poundage for knitting.

Hosiery manufacturers faced the most critical period of modern times late in July when their silk supplies were cut off. Some authorities had foreseen the development, and plans for utilizing synthetics were quickly under way. Silk hosiery counters in retail stores have been doing a business described as equivalent to the Christmas season rush. Nylons are well-established in the higher price brackets by the Jap development. Half-hose is not affected and remains well-sold with machinery running overtime.

Underwear mills are hesitating to shape policies for spring because of the heavy defense demands upon them and uncertainty as to prices. Mills are active on current goods and buyers are willing to take whatever they can get.

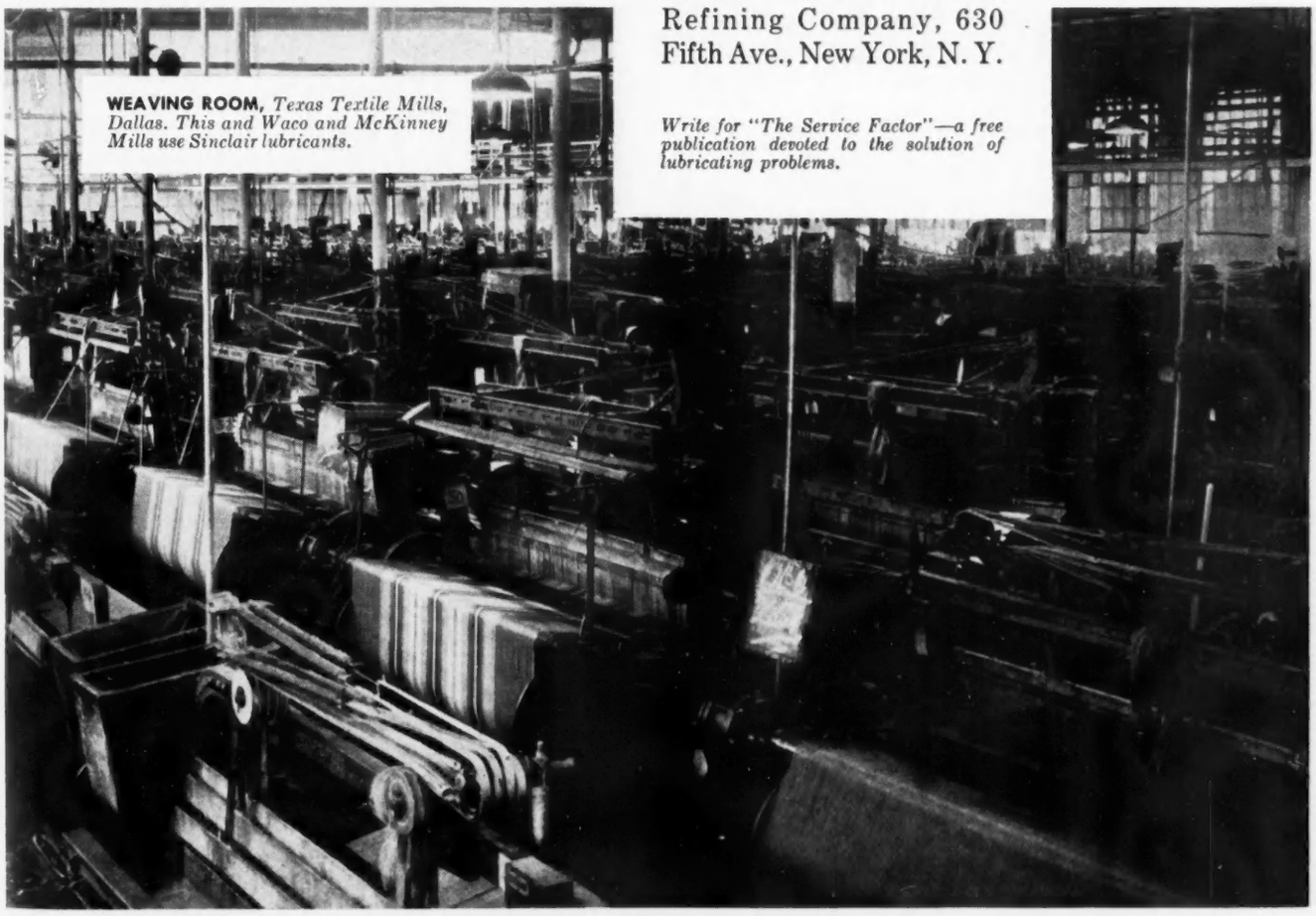
Outerwear manufacturers will open sweaters for the Christmas business late in August. Difficulty in obtaining certain types of raw materials may restrict the usual variety of these lines. Sportswear will predominate over other types. Prices on early fall deliveries remain fairly stable, but for later fall deliveries and for next spring further advances seem likely.

DEFENSE LOADS on power units and machinery demand non-failing lubrication. For requirements of *TEXTILE MACHINERY* there are . . .



. . . SINCLAIR LILY WHITE OILS and NO-DRIP LUBRICANTS in adequate viscosities and consistencies for all speeds or loads on spindles, top rolls, and comb boxes. For details about these or *Knitting Machinery* oils write nearest Sinclair Office or Sinclair Refining Company, 630 Fifth Ave., New York, N. Y.

Write for "The Service Factor"—a free publication devoted to the solution of lubricating problems.



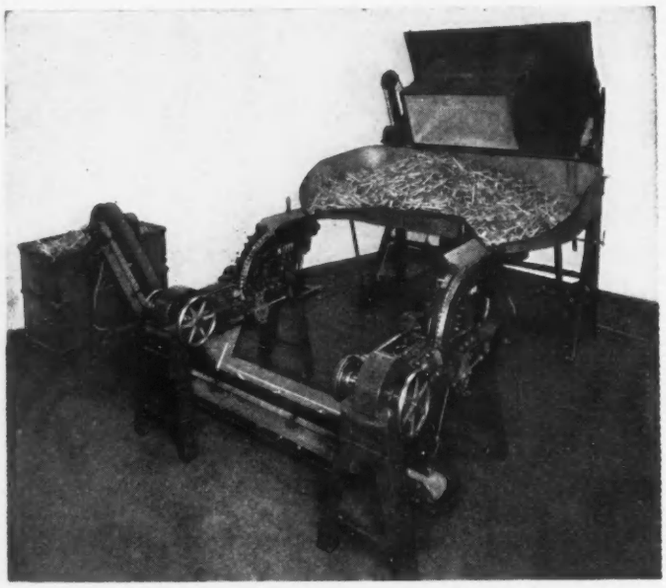
WEAVING ROOM, *Texas Textile Mills, Dallas. This and Waco and McKinney Mills use Sinclair lubricants.*

SINCLAIR TEXTILE LUBRICANTS

SINCLAIR REFINING COMPANY (Inc.)

2540 West Cermak Road, Chicago • 10 West 51st Street, New York City • 1907 Grand Avenue, Kansas City • 573 West Peachtree Street, Atlanta • Fair Building, Ft. Worth

- - - HOW LONG IS A PRODUCTION MINUTE?



THE answer to that increasingly important question depends entirely upon the efficiency of men and machines. Obsolete equipment often cuts the production minute from 60 to 30 seconds. This loss of valuable time may also be reflected in other departments, especially now when production schedules are geared to high-speed all along the line.

To insure a full 60-second production minute in bobbin cleaning departments, mills of all sizes throughout the country are turning to the modern cleaning and handling system, shown above. This compact unit—including the NEW, IMPROVED TYPE K machine (with a recommended speed of 125 bobbins per minute), the automatic Bobbin Box Hoist and Conveyor Elevator, provides unequalled over-all efficiency and economy. In the interest of your net profits, you should investigate this money-saving equipment.

Full particulars on request.

The Terrell Machine Co., Inc.

CHARLOTTE, N. C.

James F. Notman, Needham, Mass. . . . . N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J. . . . . Penn. & N. J.
Geo. Thomas & Co., Manchester, Eng. . . . . European Agt.

Size of 1942 Army in Doubt

Textile buying by QM continues but future needs are uncertain

THE ADMINISTRATION is striving for Congressional action that would permit the President to hold in service all men in the various components of the Army—selectees, regulars, national guard, and reserves. It also wants the present top limit of 900,000 inductions per year removed, and it wants a free hand to send any and all service men overseas. The isolationists are effectively opposing these Administration objectives, thus far. Strength of the Wheeler groups may break down fast when it starts, but it hasn't started yet. At this time it is not possible to make any useful forecasts as to the probable manpower of the Army this year or the next.

Contracts totaling $53,000,000 have been awarded by the Quartermaster for 1,500,000 blankets and nearly 20,000,000 yd. of cloth for Army clothing. The procurement includes 3,000,000 yd. of a new 12-oz. wool lining material just developed for field jackets. It is a blend of 60% new wool, 20% reprocessed wool, and 20% cotton.

Another new development is a doeskin cloth of high quality to make overcoats for flying cadets. Awards have been made for 250,000 yd. of this material.

Included also in the big order were 3,500,000 yd. of o.d. melton, 32-oz. overcoat material, which will make 1,000,000 garments. This stuff is 65% new wool and 35% reworked wool. This fabric is covered by Quartermaster Corps specifications No. 8-53, and was described in the February, 1941, issue of TEXTILE WORLD, in the article on "Fabrics for National Defense," page 103.

It was said at the Philadelphia QM depot that prices paid for these goods show that manufacturers are cooperating fully with the Government. Despite a substantial increase in wages, some of the prices quoted were lower than those of last March.

The Quartermaster also awarded contracts for a huge quantity of cotton cloth. It called for 12,500,000 yd. of cotton drill and accepted bids on 15,000,000 yd., which indicates that the price is satisfactory. It called for 13,000,000 yd. of herringbone twill, and accepted that amount.

Both the wool orders and the cotton orders are a continuation of the QM long-term procurement program, in which manufacturers are given plenty of time to deliver, in order to avoid any more of the mill jams which occurred earlier in the clothing and equipage build-up.

★ ★ ★

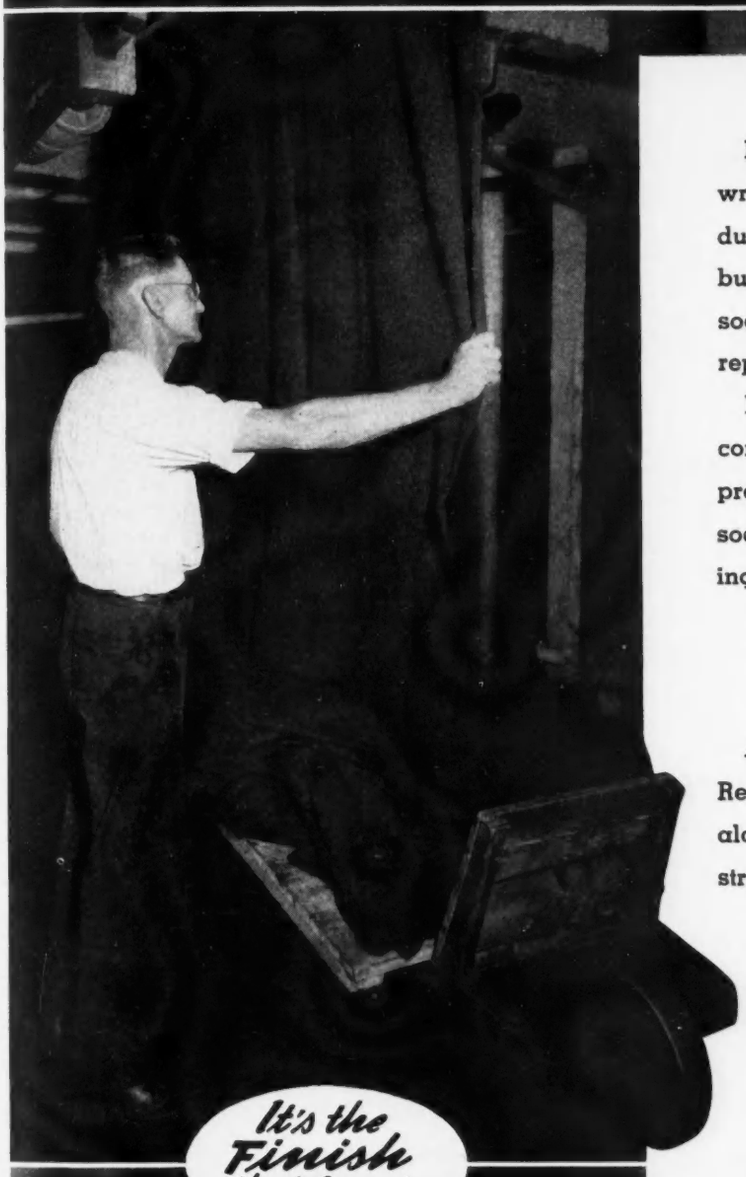
Textile Training School in Gaston County

Gaston County, N. C., has been chosen by the committee appointed by Governor J. M. Broughton as the logical location for the State's new textile school. A site near the Catawba River and approximately half way between Gastonia and Charlotte has been selected. Gaston County industrialists donated the site for the school which consists of about 16 acres of land with water and sewer facilities, and $50,000 cash.

The State appropriated at the last session of the Legislature a fund of $50,000 toward the school, and it is hoped that approximately $75,000 can be obtained from the WPA. The total fund available is to be used in constructing a modern and up-to-date plant.

The textile school is to be a day school for vocational training for young men and women who want to learn the textile operations from scratch or who wish to enroll in the bracket of promotion learners. No tuition is to be charged and every operation in the cotton mill is to be taught.

NO WRINKLES OR STUCK PLACES



It's the Finish that Counts

Not only does FULLITIN prevent wrinkles, stuck places and whiplashes, due to its mild mellow action in fulling, but it can also eliminate that lengthy soap boiling operation, if it is used to replace soap entirely.

If preferred FULLETIN may be used in combination with soap, in which case it prevents congealing and permits the soap to be used stone cold, thus eliminating many troubles that hot soap causes.

SCOUROLAN
FOR SCOURING

A Fitting Companion for FULLITIN. Removes grease, oil and dirt that soap alone will fail to lift. Prevents cloudy or streaky piece dyeing, smelly goods, or gummy handle: promotes brighter, deeper colors. Can be used cold on stock or yarn dyed fabrics to prevent bleeding.

Send for circular, "How BISCHOFF Aids the Textile Finisher".

FULLITIN

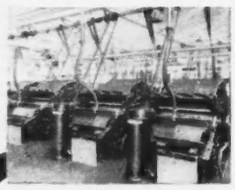
FOR PERFECT FULLING

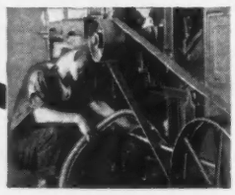
ERNST BISCHOFF COMPANY · INC ·

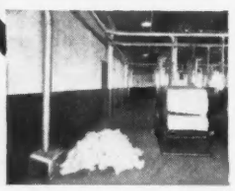
Founded 1908 Ivoryton · Connecticut

Abington Card Stripping and Process Waste Collecting

All strips and waste conveyed to central waste house.



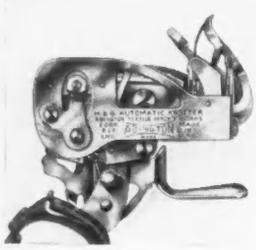




STRIPPING 554 COTTON CARDS
WOOLEN STRIPPER
COLLECTING PICKER NOTES
COLLECTING CARD UNDERSCREENINGS
FAST, THOROUGH SWEEPING
WASTE STATION FOR FLAT STRIPS, COMBER NOIL, ETC.

SAVES 60% to 90%

Some 700 cotton, woolen and worsted mills are saving 60% to 90% of their stripping costs – and getting a better job! No brush touches the wires in the Abington System. It's 100% vacuum, preserving the edge of the delicate wires so that some users say they only have to grind half as often! In addition to better card stripping, users have improved efficiency by "vacuumizing" all waste collecting, from cards, pickers, combers, in fact anywhere there are screenings, waste, fly or sweepings. Savings often retire the cost in a single year. To Economize – "Vacuumize"!



WEAVER'S KNOTTER

Send bobbin or fair sample of yarn and we will prepare Knot Card and arrange

FREE TRIAL IN YOUR MILL

STRIPPER AND KNOTTER CATALOGUE FREE ON REQUEST.

ABINGTON

ABINGTON TEXTILE MCHY. WKS., ABINGTON, MASS.

Card Strippers — Yarn Dyeing Systems — Weaver's Knotters

OFFICES AT BOSTON, MASS. • CHARLOTTE, N. C.

Consumers Ignore Labels

But wool mills and distributors tackle problems as law goes into effect

THE WOOL PRODUCTS LABELING ACT went into effect July 15 without any significant ripples on the surface but with lots of extra work and worries underneath. Surveys among retailers to ascertain consumer reaction disclosed general indifference and no response worthy of the name. Questions unanswered by the authorities, affecting practices of manufacturers and distributors, however, were bothersome to the trade and still remain the subject of argument and correspondence.

The "continuing guarantee" which mills may file to cover the fiber information they pass on to users of their cloth, is not getting much support from fabric manufacturers. They meet the law's requirements when they label their deliveries and make the necessary statements on invoices. Cutters have been pressing some mills for guarantees but without widespread success.

Labeling of retail stocks, which were on hand without labels on the effective date of the law, proved the retailers' particular pain-in-the-neck. Many of the new labels which blossomed out on July 15 read something to the effect "fiber content unknown—not to be sold for delivery outside of the State." Retailers are trusting to the common sense of the law-enforcing agencies to accept their effort to meet the requirements, without holding them responsible for failing to do the impossible.

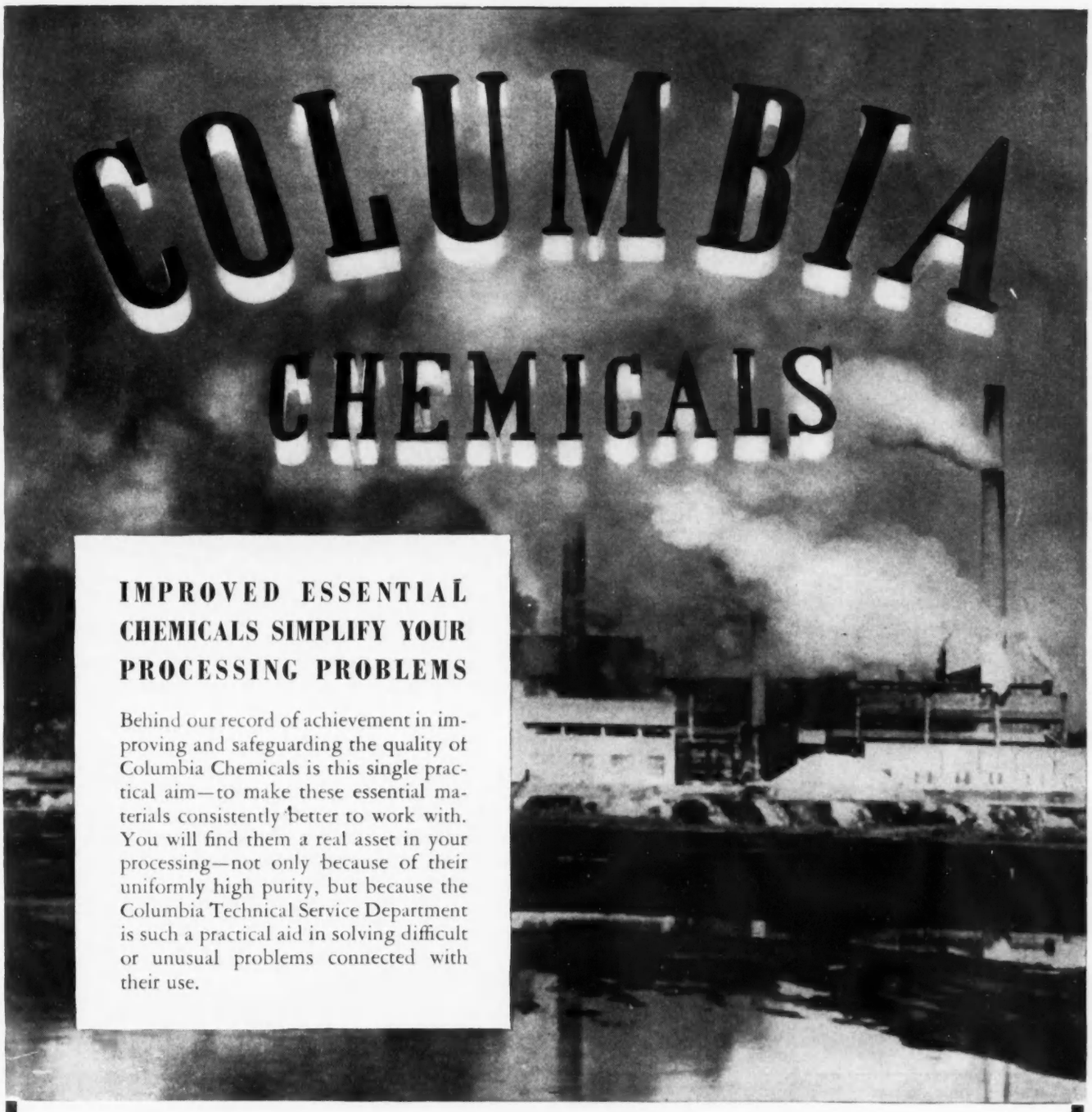
According to the verbage of the law wool is "wool," though the F.T.C. rules permit "virgin" to be used under certain conditions. One school of merchants is avoiding the use of this word as merely adding hokum to a sufficiently complicated schedule of nomenclature; in other quarters it is being given a play.

Large retailers in all parts of the country have used advertising space to clarify the nomenclature of the labeling law for the consumer. Many of these give intelligent explanations as to the character and utility of "repossessed" and "reused" wool. Some observers predict, as a possible result, that prejudice against these types will be reduced rather than increased. Mixtures with rayon and cotton will be promoted and sold on the virtues which inhere in these fibers, and a conceivable development is more widespread respect in consumer circles for mixtures, rather than the all-out demand for all new-wool fabrics which the manufacturing fraternity believes was in the minds of the raw wool interests which supported and eventually helped in the passage of the law.

Whether or not the law appreciably increases costs of wool products to the consumer may be argued without definite conclusion, but it is true that mills, cutters and retailers are paying out good money to print tags and to keep records. Mills and cutters, in particular, must record what goes into their products and keep those records available for three years.

In New York retail stores there was surprisingly little consumer reaction during the first two weeks of the law's effectiveness. However, it was pointed out that mid-summer is not a time when people at large are "all-wool" conscious, and more valid comment can be made following the retail clothing season this fall.

The Department of Commerce, has announced revision of the "Commercial Standard for Wool and Part-Wool Fabrics, CS65-38" of the National Bureau of Standards. The parts applying to labeling as to fiber content were to be disregarded beginning on July 14. Copies of the proposed revised standard will be distributed to those interested for approval at some later date.



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Behind our record of achievement in improving and safeguarding the quality of Columbia Chemicals is this single practical aim—to make these essential materials consistently better to work with. You will find them a real asset in your processing—not only because of their uniformly high purity, but because the Columbia Technical Service Department is such a practical aid in solving difficult or unusual problems connected with their use.

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PITTSBURGH PLATE GLASS COMPANY

Columbia Chemical Division

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"INDEX" To Better Quality Textiles

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FOR	Dyeing	USE SOLVAY CAUSTIC POTASH
FOR	Dyeing Hypochlorite bleaching Kier boiling Mercerizing Neutralizing	USE SOLVAY CAUSTIC SODA
FOR	Hypochlorite bleaching Oriental rug finishing Water conditioning	USE SOLVAY LIQUID CHLORINE
FOR	Mothproofing	USE SOLVAY PARA-DICHLOROBENZENE
FOR	Dyeing Softening	USE SOLVAY POTASSIUM CARBONATE
FOR	Acid neutralizing Degumming Fulling Scouring Soap building Softening	USE SOLVAY SNOWFLAKE CRYSTALS
FOR	Acid neutralizing Fulling Hypochlorite bleaching Kier boiling Scouring Soap building Water conditioning	USE SOLVAY SODA ASH
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FOR	Acid neutralizing Degumming Fulling Scouring Soap building Softening	USE SOLVAY TEXTILE SODA

FOR TECHNICAL SERVICE In the Solvay Laboratories, textile men with years of experience study your problems and make recommendations on the basis of laboratory findings. *Solvay will be glad to send these textile specialists into your plant to study actual operating conditions and help adapt laboratory findings to specific plant conditions.* Write today to

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Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 Rector Street • New York, N. Y.

Outlook for Hosiery Materials

Rayon and Nylon best bets as silk substitutes, says Marshall Moss

A REALISTIC ANALYSIS of the outlook in raw material supply for the hosiery industry was made by Marshall Moss, president of NoMend Hosiery, Inc., in a recent talk before the Hosiery Section of the Fashion Group, given before the Japanese "freezing" occurred. His forecast of over a month ago applies with great exactness now. He said:

"If worst comes to worst, and Japanese silk imports were to suddenly stop, we would be confronted with a problem never before equalled in our industry. The less-than-average two months' supply of raw silk on hand today, would probably be seized by our Government—part of it stored away for war needs and the balance alloted and sold to our hosiery industry. This would mean that not more than a three to four month normal supply of silk stockings would be available, with a demand of tremendous proportion on the part of all buyers to place orders that would absorb such stocks within less than a week. We in the hosiery manufacturing business, would find ourselves very much up against the wall for a sufficient amount of a suitable substitute in addition to Nylon.

"Rayon, as it has been produced up to the present day, would be our next best substitute, but with rayon plants sold to 100% capacity and ahead for several months, with business coming from its regular customers—primarily manufacturers of woven products and not hosiery—the hosiery manufacturers are placed in a critical position.

"A new and stronger rayon, more suitable for full-fashioned hosiery, has been developed by one of our largest producers, but this has not reached the market due to the slowing down of all plant and machinery production, not entering into armament needs.

"Vinyon as a synthetic yarn for hosiery is definitely not in sight for near future use. It still needs more laboratory refinement and then millions of dollars invested for building and machinery. It is the nearest approach we have to Nylon in that it is much stronger than silk.

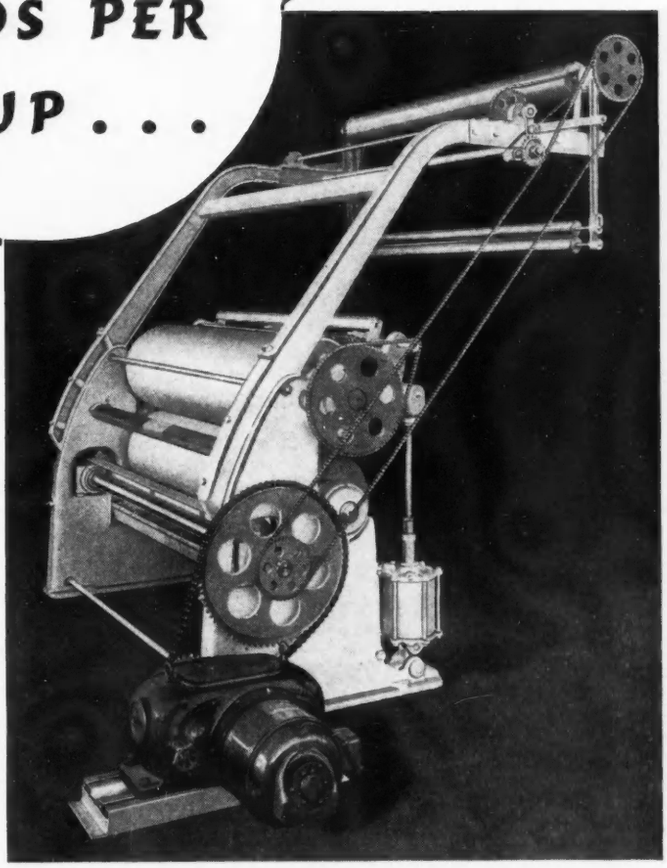
"Fine count cotton yarns, I do not believe, would play an important part in the manufacture of women's hosiery. In the first place, our cotton spinning plants are likewise working to capacity, with a heavy demand coming from the Government for cloth to the extent that neither spindles, nor much fine long-staple cotton, is available for the slower spinning of 120/2 and 140/2 mercerized cotton, which is about the only type of cotton hosiery a small portion of American women would even consider wearing. I believe that rayon (as poor as it would admittedly be for women's hosiery) would probably be alloted by the Government to protect our industry over a temporary productive period.

"I do not feel that there would be much tendency toward any added use of wool hosiery because of the finer gauge machines we have today, which are primarily 42, 45 and 51 gauge, and are not practical for the knitting of fine wool.

"Fortunately, Nylon has definitely proven itself to be the miracle hosiery yarn of the day. It has the richness of silk, with the added qualities of greater uniformity and strength that amazed every woman who wore a pair. Nylon is best fitted for hosiery use and its supply for the remainder of the year 1941 is now dormant at approximately 8,000,000 dozens, or 20% of the entire shipments of silk and Nylon combined.

"Manufacturers in the hosiery industry will not be in a position to increase their Nylon production in the slightest degree until January 1942, and from that date forward until July 1942, should look for a gradual increase in allotment to be spread among the many manufacturers to help them produce a 50% increase in Nylon hosiery.

HOW TO EXTRACT MOISTURE FROM CLOTH UNIFORMLY AT SPEEDS FROM 45 YARDS PER MINUTE AND UP . . .



For the Plant . . SEEKING more uniform extracting with a higher percentage of moisture removed from all woven fabrics, the economical solution will be found in the new Hunter Model G Pneumatically Controlled Squeeze Rolls.

THIS new model may be used as a separate unit, in combination with a scutcher, in continuous cloth carbonizing or washer lines, on tracks in wet finishing rooms, or in front of cloth tentering machines.

It is adaptable to any woven fabric, either flat or pile type, cotton, rayons, woolens, worsteds, and blended or manipulated fabrics. It will extract cloth down to 50% to 60% moisture content on the dry basis at continuous running speeds of over 25 yards per minute.

For complete details of individual applications of the Hunter Pneumatically Controlled Squeeze Rolls in a variety of plants, write

JAMES HUNTER MACHINE COMPANY

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Western Representative: **E. G. PAULES, 343 Bendix Bldg., Los Angeles, Calif.**

There's Money In It!

When you figure up how much impure water may be costing you in off-whites, poor dye matching, dull colors and spoilage, it may prompt you to get the facts on a

HUNGERFORD & TERRY WATER PURIFICATION SYSTEM

For only a few cents a thousand gallons these compact, efficient units will supply your dyeing and finishing departments with 100% soft, clear, iron-free water . . . water that not only assures top-quality fabric with minimum spoilage, but saves amazingly on soap, detergents and oils as well . . . A survey of your water situation involves no obligation whatever—write us today.

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WATER PURIFICATION PLANTS DESIGNED INSTALLED *and* GUARANTEED

CLAYTON, NEW JERSEY

NEWS ABOUT MEN

Nathaniel Stevens, president of M. T. Stevens & Sons Co., North Andover, Mass., was recently honored by his employees, who presented him with a testimonial volume containing autographs of 5,000 workers in the organization's plants in commemoration of Mr. Stevens' 65th anniversary as an employee. Mr. Stevens became president in 1900.

E. F. Magill has been elected president of Whitehall Knitting Mills, Mt. Holly, N. C.

A. J. Mitchell has been elected secretary of Shamrock Damask Mills, Landrum, S. C.

Donald Comer of Birmingham, Ala., president of Avondale Mills, has been appointed by Governor Comer of Alabama to head the Alabama committee of the Southwide Ten-Year Development Program, sponsored by the Southern Governors Conference. The program aims at "Balanced Prosperity" in the South during 1940-50.

J. Douglas Woods has been named to the presidency of York Knitting Mills Ltd., Toronto, Ont., succeeding his father, the late Sir James Woods.

John W. Arrington, Jr., vice-president and treasurer of Union Bleachery, Greenville, S. C., was chairman of the club program of Rotary International for the assembly for the 1941 convention of Rotary in Denver, Colo., June 15 to 20.

W. N. Boyd has been elected secretary and treasurer of the Peck Mfg. Co., Warrenton, N. C., succeeding **R. T. Watson.**

H. W. Little has been elected president of Anson Mfg. Co., Wadesboro, N. C., succeeding **T. C. Coxe.**

Bertram E. Green, Revere Knitting Mills, has been elected president of the New England Division of the Knitted Outerwear Manufacturers Association, succeeding **Rudolph H. Wyner,** now president of the national organization. **A. Paul Cohen,** Suffolk Knitting Mills, was elected vice-president, and **Samuel P. Kaplan,** Boston lawyer, was re-elected executive secretary and treasurer.

Douglas S. Blois, executive of Southern Mercerizing Co., Tryon, N. C., has resigned to become secretary of Green River Mills, Tuxedo, N. C.

C. O. Robinson, Jr., who has been treasurer of Elizabeth City (N. C.) Cotton Mills, is now acting as superintendent, also.

George G. Sharpe has been elected president of Pickett Hosiery Mills, Burlington, N. C. He was formerly secretary and treasurer of the company.

William L. Pitcher, treasurer of Easthampton Rubber Thread Co., and of United Elastic Corp., was presented with a mounted telescope at a recent surprise party given in honor of his half century of service to the former organization. The presentation was made by Judge Edward L. Shaw of Northampton, Mass., president of United Elastic, and associates were present from the New Haven, Lowell, and Littleton, Mass., plants.

J. N. Edens is the newly-elected president of Corsicana (Tex.) Cotton Mills, succeeding the late R. L. Hamilton.

William Brune, of Brune, Nadler & Cuffe, New York textile exporters, celebrated the 50th anniversary of his connection with the textile export business in July. He started his career in this field on July 13, 1891, as an office boy with Neuss, Hesslein & Co.

Eugene Messner will head a new department in the firm of A. M. Perlman, Inc, New York, catering to the better grade dress and sportswear trade. He was at one time head of the Arnotex Department of Arnold Sales Corp.

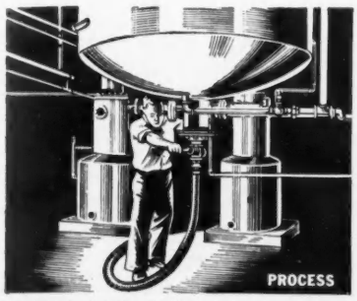
John J. Noonan has joined the Crompton-Richmond Co., New York, in a new-business department assisting Philip Osborne, assistant vice-president.

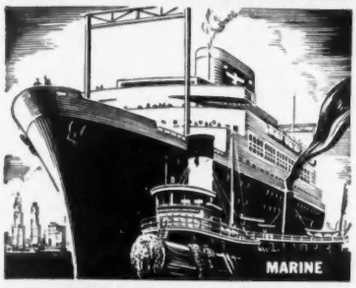
Robert C. Lyman has been elected president and treasurer of American Hosiery Co., New Britain, Conn., succeeding **Roger W. Whitman,** who has resigned following call to active service as a lieutenant colonel in the U. S. Army Quartermaster Corps. Mr. Lyman was formerly vice-president in charge of sales. **Nicholas Egan** has been elected vice-president and secretary.

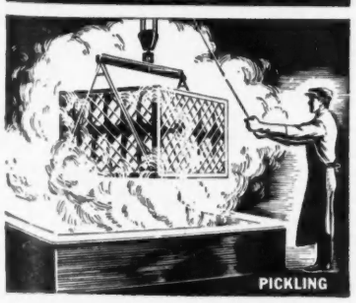
John W. Murray, textile editor of the *Journal of Commerce,* New York, for some years, has become director of public relations for the Cotton-Textile Institute. **John Severance,** now cotton editor, succeeds Mr. Murray as textile editor.

William Alfred Taylor, for more than 20 years with

PARTNERS FOR THE EMERGENCY . . !







IN the industries illustrated, and scores of others, INCO Nickel Alloys have long been used for vital parts of equipment. Strong, tough, resistant to heat, corrosion and wear, these metals assure trouble-free performance, and long, economical life. As a result, INCO Nickel Alloys are now in urgent demand . . . working with former peace-time industries as "Partners For The Emergency."

PROCESS: Pure Nickel, Nickel-clad steel, Monel* and Inconel* used in processing rubber, plastics, solvents, explosives, chemicals and other materials vital to defense.

MARINE: Monel, "K" Monel, "S" Monel*, Inconel widely employed for propelling and auxiliary machinery, and in many hull applications by Navy and Merchant Marine.

FOOD: Monel and Pure Nickel equipment used in grading, preparing, cooking and canning food for the armed forces.

PETROLEUM: Inconel and "K" Monel* widely used in production and refining of fuel oil, gasoline and aviation fuels.

PICKLING: Monel equipment universally employed in pickling iron and steel for defense production.

AVIATION: Inconel widely used for airplane exhaust manifolds and fire walls; Monel and "K" Monel for structural parts, parachute harness and other accessories.

TEXTILE: Dyeing machines and tanks of Monel used in producing army cloth and other textiles for military use.

ELECTRICAL: Monel, Nickel, "Z" Nickel and Inconel used for springs, contacts and other parts of electrical equipment vital to defense.

RADIO: Nickel universally employed for tube parts and other Nickel-alloys for chassis, transmitting and receiving equipment for the services.

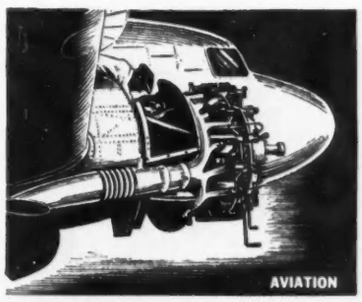
POWER PLANT: Monel, "K" Monel, "S" Monel, Inconel used for working parts of turbines, valves, generators, pumps and other vital equipment.

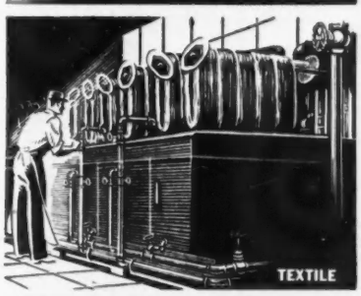
Throughout industry, wherever manufacturers are producing for Defense — in the leather, paint and varnish, paper and many other fields — Monel, Nickel and Nickel Alloys are helping the Services prepare. As a consequence supplies of these metals are being diverted from their normal peace-time channel, and our major efforts must be directed toward serving war-time needs.

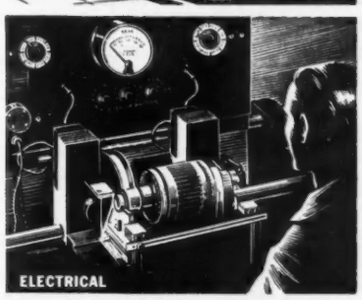
THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street **New York, N. Y.**

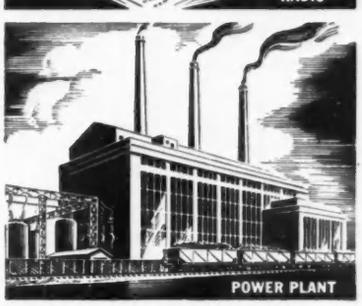
INCO NICKEL

*"Monel" and other trade-marks which have an asterisk associated with them are trade-marks of The International Nickel Company, Inc.







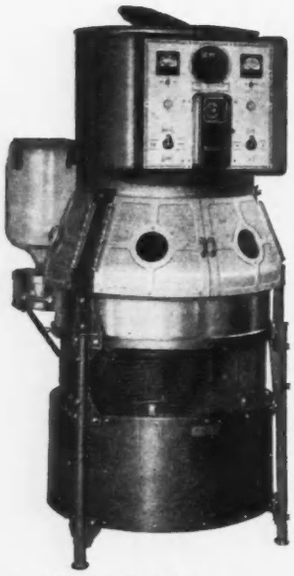


INCO NICKEL ALLOYS

MONEL • "K" MONEL • "S" MONEL • "R" MONEL • "KR" MONEL • INCONEL • NICKEL • "Z" NICKEL

Sheet... Strip... Rod... Tubing... Wire... Castings

SUN TAN



FDA-R *Fade-ometer*

It has been remarked that America is fast becoming a nation of "Sun Worshippers". Certainly it is true that exposing large areas of the epidermis to sunlight has become a favorite national pastime. This tendency and the modern regimen of out-door life have probably increased the problems of the textile industry. Modern textiles are expected to undergo more sunlight exposure without fading than ever before. Under these conditions a standardized reproducible test for lightfastness becomes a virtual necessity in the textile industry.

The Atlas Fade-Ometer provides an accelerated test in your own laboratory—a dependable yardstick to measure the sunfastness of your materials quickly. Why not get the facts on this essential laboratory tool today? Complimentary catalogue will be sent on request.

ATLAS ELECTRIC DEVICES CO.

361 W. Superior St. Chicago, Ill.

FOR TEXTILE MACHINERY

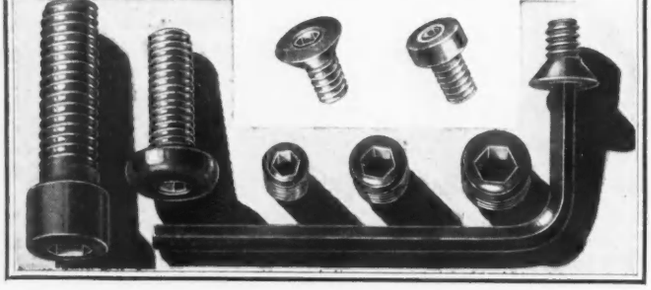
ALLEN

HOLLOW Hex Socket SCREWS

These specially-developed ALLEN Hollow Screws will cut your losses from *pulled threads.* Heads set perfectly flush with machine surfaces. No sharp edges to catch fabrics; screws are chamfered at the point, outside edge of head and top edge of socket. No slots to burr and pull threads; the internally operated hex key sets the screw easily, quickly and *tightly* without slippage.

Send specifications of diameter, length and thread or submit actual samples of screws you are now using. We will supply Allen samples developed for your particular application.

THE ALLEN MANUFACTURING COMPANY
HARTFORD, CONNECTICUT, U.S.A.



Cheney Bros., New York, has resigned as head of the men's wear department, the cravat department and the special fabric department. He has become associated with B. W. Mayer, Ltd. as first vice-president and general manager.

S. J. Johnston has accepted the position of superintendent of Marshall (N.C.) Mill & Power Co.

Albert G. Myers, Jr., son of A. G. Myers, president of Textiles, Inc., Gastonia, N. C., has joined the sales force of his father's company and will work out of Chattanooga in association with George S. Johnston, who is Textiles, Inc's. man in that territory.

S. D. Pridmore, overseer of weaving at Abbeville (S.C.) Cotton Mills, has resigned to accept a position as representative for Snap-On Tools, with headquarters in Greenville, S. C.

Cassius M. Stanley, Jr., has been appointed head professor in the department of textile engineering at Texas Tech-

Textile Men in Armed Services

Robert Leeson, president of Universal Winding Co., Providence, R. I., has been called to active service as a lieutenant j. g. in the U. S. Navy and as result has retired from his office with the company. The existing personnel, who will carry on during Mr. Leeson's absence, are named on page 74 of this issue.

Max G. Johl, president and general manager of Max Pollack & Co., Groton, Conn., has been called to active service as first lieutenant in the Medical Administrative Reserves and will be stationed for a year at the Hartford air base. It is understood that no one will take Mr. Johl's office with the mill, but that the mill will be operated by the existing departmental executives with a profit-sharing plan for all employees.

Robert Moore, of Dacotah Cotton Mill, Lexington, N. C., has been called for active duty in the Army.

Jim Odegaard, just graduated from the Textile School of North Carolina State College, has entered the Army, being assigned to the QM.

Harvey Radus, production manager of Ribbon Narrow Fabric Co., New York, has been inducted into the Army.

Edward L. Kelton, an executive in charge of manufacturing and processing yarns at the Sulloway Hosiery Mills, Franklin, N. H., has been commissioned as a captain in command of the Third Company, New Hampshire State Guard, with headquarters at the State Armory in Franklin.

R. J. McCormick, of Riverside Silk Mills Ltd., Galt, Ont., is now on active service as second lieutenant with the 1st Battalion of the Highland Light Infantry of Canada at Debert, N. S. He is a son of **G. H. McCormick,** secretary-treasurer, Riverside Silk Mills,

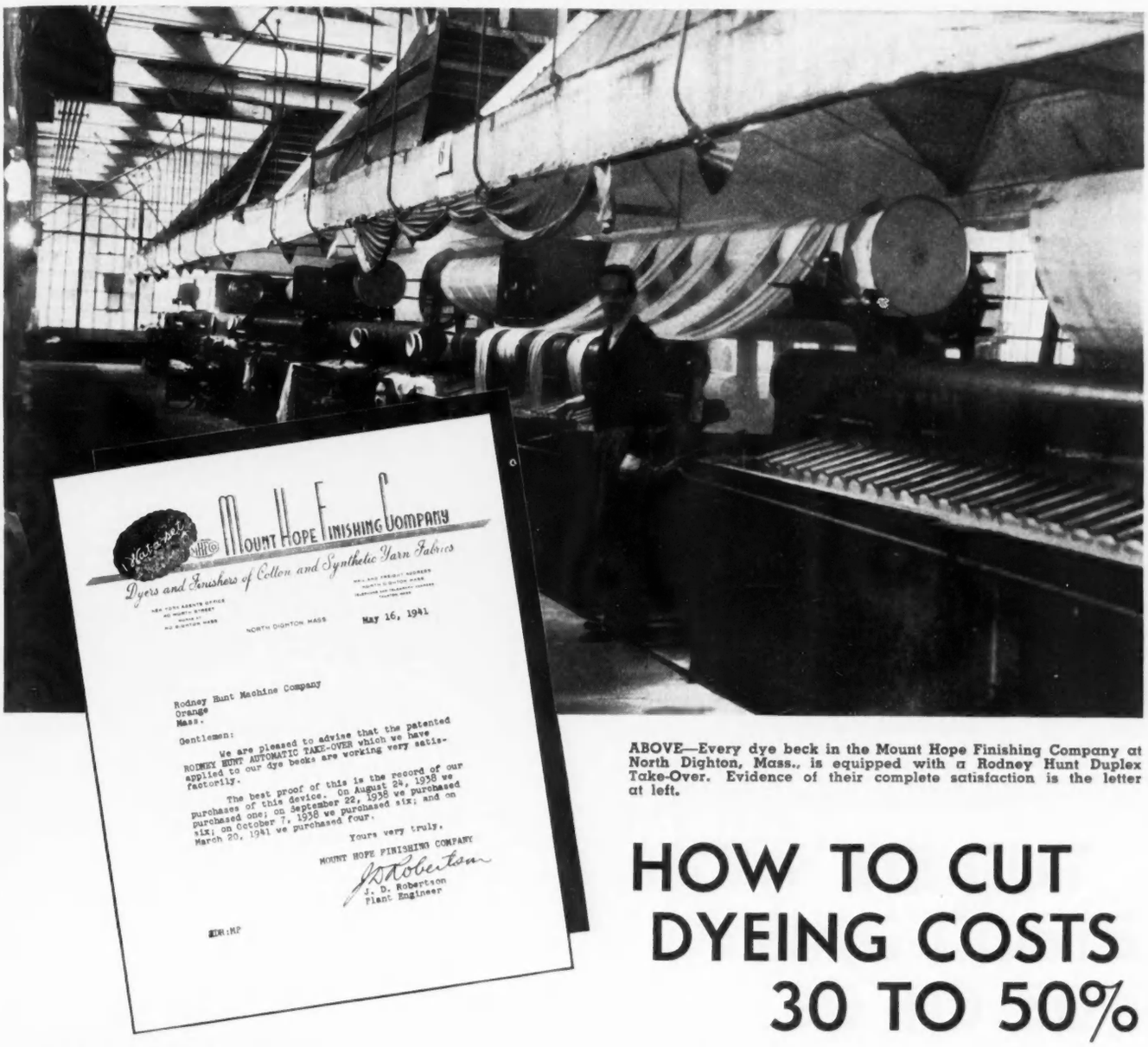
LIEUT. W. G. ASHMORE

William G. Ashmore, since 1934 southern editor of TEXTILE WORLD with office at Greenville, S. C., has been called from his reserve status to active service as lieutenant in the U. S. Army. He has been assigned to QM duty at Washington. Lieut. Ashmore was graduated from Clemson Textile School and has had wide experience in the textile industry. His place at Greenville is being taken by **Gordon B. M. Walker,** long a resident of Greenville but lately on the paper's editorial staff at New York.

Joe Goodman, of Federated Textiles, Inc., New York, has been recently commissioned a second-lieutenant in the Army.

Joseph V. Moffitt, Jr., son of J. V. Moffitt, secretary and treasurer of Wennonah Cotton Mills has been called for active duty as a captain in the Army.

A. S. Cruickshank, previously with the Philadelphia office of the Celanese Corp. of America, who recently enlisted in the Army, is now a corporal with Battery A, 71st Coast Artillery, Fort Story, Va.


Mount Hope Finishing Company
Dyers and Finishers of Cotton and Synthetic Yarn Fabrics
NORTH DIGHTON, MASS
May 16, 1941
Rodney Hunt Machine Company
Orange
Mass.
Gentlemen:
We are pleased to advise that the patented RODNEY HUNT AUTOMATIC TAKE-OVER which we have applied to our dye becks are working very satisfactorily.
The best proof of this is the record of our purchases of this device. On August 24, 1938 we purchased one; on September 22, 1938 we purchased six; on October 7, 1938 we purchased six; and on March 20, 1941 we purchased four.
Yours very truly,
MOUNT HOPE FINISHING COMPANY
J. D. Robertson
Plant Engineer
JDR:MP

ABOVE—Every dye beck in the Mount Hope Finishing Company at North Dighton, Mass., is equipped with a Rodney Hunt Duplex Take-Over. Evidence of their complete satisfaction is the letter at left.

HOW TO CUT DYEING COSTS 30 TO 50%

RODNEY HUNT

PATENTED

Duplex Take-Over

A CONTINUOUS CLOTH-FEED CONTROL FOR DYEING MACHINES AND WASHERS

Write for Bulletin TM 741

Simply install the new patented Rodney Hunt DUPLEX TAKE-OVER on your dye becks and dyeing machines. It provides automatic feeding of cloth in one continuous string, handling any weight of fabric from lightest rayons to the heaviest woolens. It permits loading the tub, increasing its capacity 30 to 50%. It saves time sewing up and tearing out seams and loading and unloading many strings. It saves material—1/8 to 1/4 yard on each string from torn ends. It provides absolutely uniform dyeing. Easy to install, the DUPLEX TAKE-OVER can be attached to any modern Rodney Hunt Dyeing Machine in a few hours. Also easily adapted for washers. It pays for itself time and again. Scores of installations and repeat orders have PROVED beyond question that the DUPLEX TAKE-OVER has at last solved this problem of continuous cloth-feed control for the textile industry.

RODNEY HUNT MACHINE CO.

66 MILL STREET

ORANGE, MASSACHUSETTS, U.S.A.

PHILADELPHIA
F. E. Wasson

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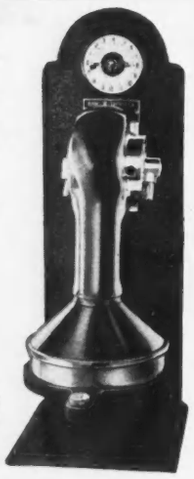
NEW PRINCIPLE

DIETERT

MOISTURE TELLER

for Rapid, Accurate

MOISTURE CONTROL



- SAVES TIME
- IMPROVES QUALITY
- REDUCES REJECTIONS

This NEW PRINCIPLE Dietert

MOISTURE Control actually provides Product Quality Control. Practical and accurate, it rapidly establishes moisture content. As proved by constant, daily operation in hundreds of textile mills it assures tremendous savings in processing time, reductions of rejections, improvement of product quality. Sample pan easily inserted or removed. The Unit is portable and inexpensive and will pay for itself in many ways every day!

MANY USES

Raw Stock
Cotton Rayon
Wool Silk

Finishers
Piece Goods

Stock in Process
Carding Roving
Drawing Spinning

Yarn Buyers
Knitting Weaving

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Why Not? *Have Your Personal Accident and Health Insurance with . . .*

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T.W.'41

NEWS ABOUT MEN

nological College, Lubbock, Tex. He replaces **Roland L. Lee, Jr.,** who resigned to become senior cotton technologist in the cotton processing division of the Southern Regional Research Laboratory. Mr. Stanley is a graduate of Alabama Polytechnic Institute and has been an assistant professor at Lubbock since 1937.

Wesley Frane, for the last ten years with Utica and Mohawk Valley Cotton Mills, Utica, N. Y., and since 1937 secretary of the corporation, has resigned. He will leave the textile business to take care of a large plantation in South Carolina.

William Stutts has joined American Viscose Corp., New York, as assistant to **John A. Spooner,** advertising manager. He has been for five years with J. M. Mathes, Inc., New York, the viscose firm's advertising agency.

Roy Stickel has resigned from United Merchants Sales Corp., New York, and has joined the textile brokerage house of Scheuer & Co. Mr. Stickel was a graduate of the old firm of Bliss Fabyan & Co. with which he was associated for 14 years.

George W. Russell has been elected president of Clinton C. Brown, Inc., Boston, succeeding the late Clinton C. Brown.

Carl F. Bartz has been appointed manager of the Dallas (Texas) Regional Office of the Department of Commerce. Mr. Bartz has had extensive experience with cotton both in this country and abroad.

Iser P. Cohen for 50 years in the knit goods business and during the last eighteen months director of Woolknit Associates, Inc., has established the firm of I. P. Cohen Co. to represent knitting mills in the New York market.

Roscoe M. Lee has joined Callaway Mills as sales representative for the southwest territory. He was for the last few years head of the Dallas, Tex., office of Pacific Mills.

W. P. Crawley has resigned as instructor in weaving and designing at the Textile School of North Carolina State College, to join Tennessee-Eastman Corp. at Kingsport, Tenn., as a textile engineer.

Walter H. Paige, John Reagan, William Thompson, Jr., William B. Ferguson, and **William A. Thompson** have been nominated by the Governor of Massachusetts for the New Bedford Textile School. The first two named are reappointments.

Myron S. Freeman, vice-president of Bell Co., Worcester; **Melville Weston,** treasurer of Newmarket Mfg. Co., Lowell; and **Edward C. Eno,** also of Lowell, have been appointed to three-year terms as trustees of Lowell (Mass.) Textile School.

Joseph T. MacDonald has been appointed to take full charge of the styling of cotton women's wear for Pacific Mills, New York.

S. W. Nicholson, formerly in charge of vocational education in the Spartanburg (S. C.) schools, has accepted a position as head of the employment and service department at Drayton Mills, Spartanburg.

Jack Macia, A. M. Tenney Associates, Inc., was the winner of a swimming contest held in connection with the recent annual outing of American Association of Textile Technologists, New York. **Oscar Geier,** Richards & Geier, won the high diving event, and **John Goldsmith** of Hess Goldsmith & Co., annexed tennis honors.

William H. Smith, former superintendent of Firth Carpet Co., has been appointed supervisor of the woolen and worsted section of the Textile Unit, research plant of American Viscose Corp., Marcus Hook, Pa.

Edwin Mann has been elected to the board of directors of the Hosiery Mill Representatives Club, Chicago, succeeding the late M. A. Johnson.

A. Philip Goldsmith, sales manager of Massachusetts Knitting Mills, Boston, Mass., has resigned.

P. F. Derr and **V. R. Hurka,** have joined the acetate research department of the Waynesboro (Va.) plant of E. I. du Pont de Nemours & Co. **William C. Friday,** a recent graduate of North Carolina State College, has also joined the acetate division.

Wesley F. Day, Jr., a veteran of the Worth Street market, has joined the cloth brokerage firm of W. H. Combs, New York.

James Wesley Rearden, who recently celebrated his 80th birthday, is now in his 70th year of continuous service with Graniteville (S. C.) Co. He started to work in the cloth room of that plant May 10, 1872.

J. M. Anderson for 15 years with the men's wear department of Cheney Bros., New York, has been appointed assistant manager of the broad goods division in charge of men's wear. This department

The Line of Beauty

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All women want lovely sheer stockings with fine, straight pencil-line seams that are fashion-smart, yet have adequate elasticity and durability. The new high speed Singer 242 was especially designed to produce seams of this kind . . . the line of beauty in hosiery seaming.

The Singer 242 operates with equal efficiency on the most delicate Nylon and silk hosiery as well as on wool, cotton and lisle. It not only produces better seams, which are stitched straight—but is the fastest hosiery seamer on the market today—simple to operate at speeds limited only by the operator's ability to guide the work.

Let us prove the superiority of the Singer 242 by testing it in your own plant on your own work. There is no cost or obligation. Contact the nearest Singer Shop for the Manufacturing Trade today, and arrange for your test.

Actual photograph of Nylon stockings which were seamed on the new high speed Singer 242 hosiery seaming machine.

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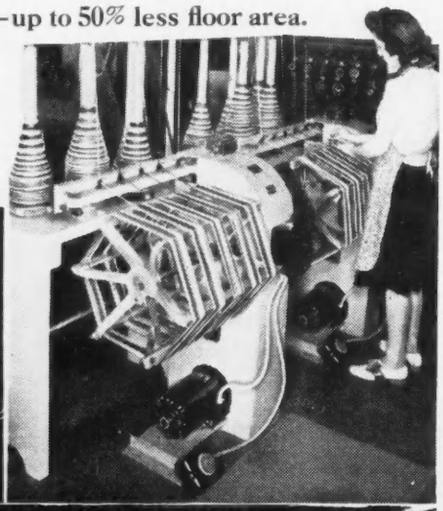
These five and ten more advantages described in Bulletin 3909 on FIDELITY Skein Reeling Machines. Write for it.



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NEWS ABOUT MEN

is under the management of **Elmer Morgan.** The cravat division is now under the management of **Ralph A. Deterling,** who resigned as director and general sales manager of Manhattan Shirt Co. to accept the Cheney connection.

W. Earl Bates, since 1926 secretary of Green River Mills, Tuxedo, N. C., has resigned to become secretary and assistant treasurer of Whitney Mfg Co., Spartanburg, S. C.

Charles F. Goldthwait has accepted a position as senior cotton technologist in charge of the Modified Finishing Section of the Cotton Chemical Finishing Division of the Southern Regional Research Laboratory, New Orleans, La.

Richard Lippincott, of Holeproof Hosiery Co., Milwaukee, has been elected president of the Wisconsin Men's Apparel Association.

Robert Readen has been appointed assistant superintendent of the Langdale, Ala., plant of West Point Mfg. Co.

George Richards, is now overseer of dyeing at Atlantic Mills, Stottville, N. Y. He was lately with Gonic Mfg. Co.

J. Lee Cline has become superintendent of Shuford Hosiery Mills, Hickory, N. C.

Arthur R. Jones is agent and manager of the newly-organized Northfield (Vt.) Woolen Mill. He comes from Dover, N. H.

William Bieberle, formerly of Oscar Heineman Corp. has joined the sales staff at the Philadelphia office of American Viscose Corp. **J. P. Mervine,** formerly with Collins & Bohr, has also joined this office, and **Fred E. Fowler** and **John Folsom** have been transferred from the company's textile unit training department at Marcus Hook to the Philadelphia sales staff.

Floyd W. Jefferson, Jr., of Iselin-Jefferson Co., New York, won first prize for 36-hole low gross at the Textile Golf Tournament held under the auspices of the Textile Square Club at the Westchester Country Club in July. By so doing he gained a second leg on the Club's trophy. **Robert Freydberg** won the 18-hole low gross on the west course, thereby getting a leg on the trophy donated by Pequot Mills. **Harder Smith** won the 18-hole low gross on the south course, getting a leg on the trophy donated by American Viscose Corp.

James F. Coleman, for the last 10 years with the New York office of Stunzi Sons Silk Co., has resigned.

Paul D. Jennings has been appointed general manager of Bell Hosiery Co., Suffolk, Va. **R. R. Hewitt** has been made superintendent.

James S. Diment has been promoted from assistant manager to manager of Columbia Mills, Minetto, N. Y., succeeding his brother, the late Ellwood Diment.

Smith Crow, recently resigned as general superintendent of Drayton Mills, Spartanburg, S. C., after 19 years of service, has become general superintendent of Erlanger Cotton Mills Co., mills Nos. 1 and 2, Lexington, N. C.

B. B. McGinty has been appointed personnel and public relations director of the Riverview, Ala., plant of the West Point Mfg. Co. Similar appointments for other units include: **A. T. Hanson** at Fairfax, **W. H. Enloe** at Langdale, and **L. F. Underwood** at Shawmut. **Grady Bradshaw** was appointed personnel and public relations director at the Lanett plant last year.

Bernard Steuer, of Tartan Knitwear Mills, Philadelphia, is chairman of the committee on industrial mobilization of the National Knitted Outerwear Association.

Byron E. Herlong, of Leesburg, Fla., has been elected president of Lake County Sea Island Cotton Growers Association.

J. E. Bradley, L. M. Charde and **De Witt Peterkin** comprising the Pacific Mills' golf team walked off with the United Air Lines Trophy at the Annual Textile Outing at Westchester Country Club July 27. The trophy was for lowest gross score.

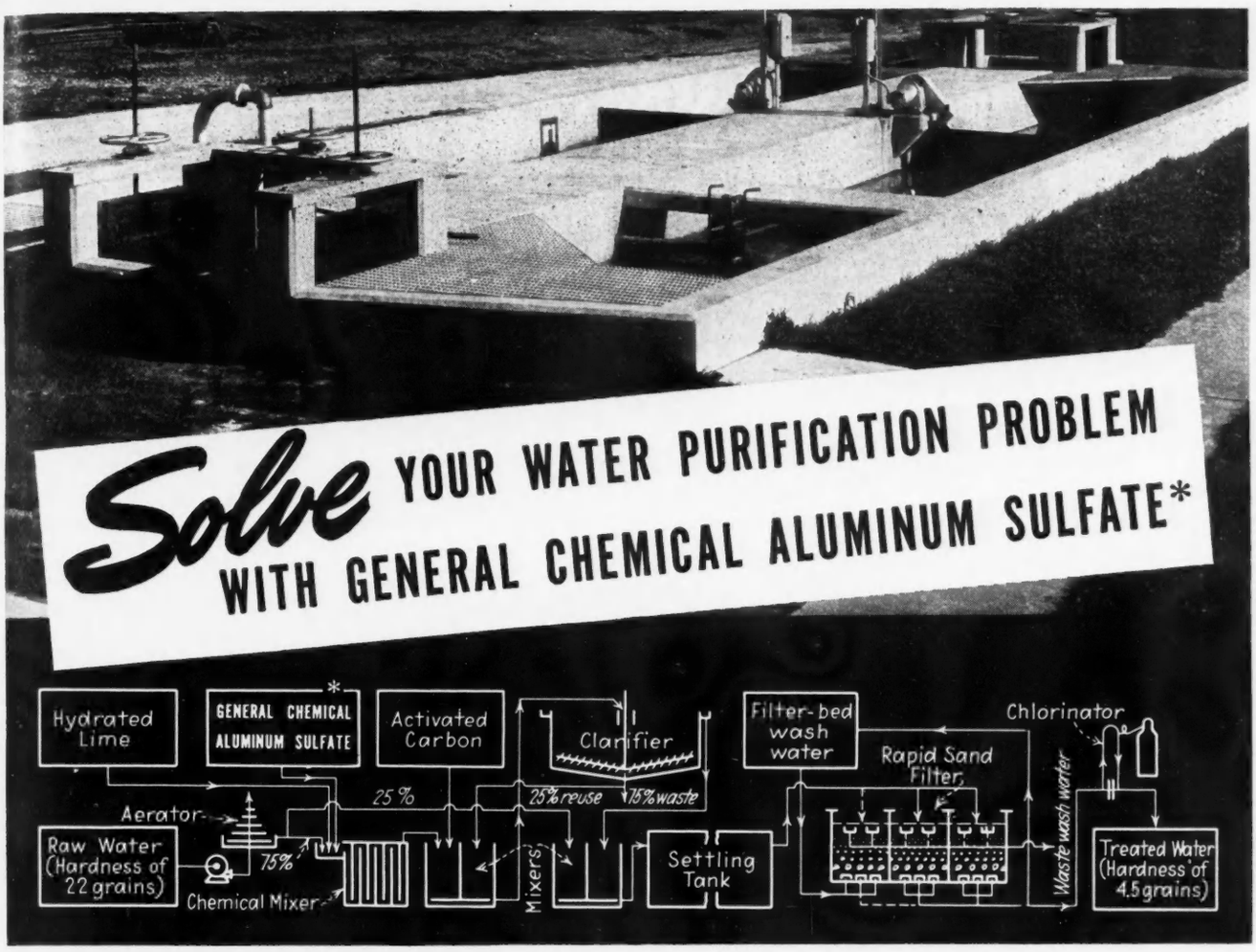
W. H. Kiser, in charge of several spinning units of Burlington mills, Gastonia, N. C., has been made superintendent of Drayton mills, Spartanburg, S. C., succeeding **Smith Crow,** resigned. Mr. Kiser was, several years ago, superintendent of Watts Mills, Laurens, S. C.

Louis Gardner, manager of Hillsborough (N.H.) Textile Co., for the last three years, has resigned.

Edwin Hutchinson, assistant secretary and buyer of supplies for the American Yarn & Processing Co., Mt. Holly, N. C., was sworn in as mayor of Mt. Holly on July 14. His father is president of the company.

French Campbell has accepted position of manager of Marylin Mills, Anniston, Ala.

Ben W. Lewis, professor of economics at Oberlin College, has been appointed price ex-



• At this time of the year textile manufacturers are faced with the problem of securing enough sufficiently pure water for their mills.

Today many of them are solving the problem efficiently and economically through the use of General Chemical Aluminum Sulfate.

General Chemical Aluminum Sulfate removes turbidity, organic and inorganic material and at the same time will "floc out" other suspended materials. Let General Chemical Company help solve your water purification problem now.

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General Chemical Technical Service Division

This Division is manned by a staff of technically trained men thoroughly conversant with the use of textile chemicals and chemicals for water purification in the Textile Industry. Inquiries for information are given prompt attention—and where advisable, a representative will be assigned to work on the problem with the customer in his own plant.

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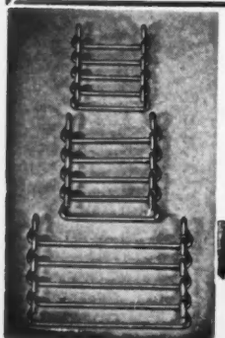

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Accurately made from high grade material—built to last and to hold its shape.

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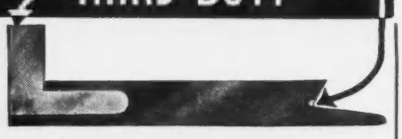
The ideal tool for cleaning out slots in sinker and divider heads. Made in all gauges. Each one comes in a leather carrying case.

Send for bulletin giving full details on these and other products.

THE SINKER WITH THE HARDENED THROAT PATENTED AND THE HARD BUTT



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ecutive in charge of the rubber and rubber products section, OPACS, by Dr. J. K. Galbraith, charge of the Price Division. During the NRA Dr. Lewis was code supervisor of the Consumers' Advisory Board.

Prof. Geo. H. Dunlap, of the Textile Department of Clemson College, has been granted a one year leave-of-absence and is to be Research Director for the Southern Textile Association and The Arkwrights, Inc. The Textile Foundation, sometime ago, made an appropriation for practical research work to be conducted under the supervision of the Southern Textile Association and The Arkwrights, and those organizations placed the research in charge of a committee composed of **T. W. Mullen,** Roanoke Rapids, N. C.; **Paul B. Parks, Jr.,** Erwin, N. C., and **R. T. Stutts,** Fountain Inn, S. C.

Alex Harley formerly head of production at Algonquin Printing Co., Fall River, Mass., is now managing a printing plant in Medellin, Colombia, S. A.

DeWitt Javan Ross, West Columbia, S. C., 1941 graduate in textile engineering at Clemson College, S. C., has joined the rayon department of E. I. du Pont de Nemours & Co., at the Waynesboro, Va., plant.

E. M. Henning has been appointed manager of the knitting department of Wiscassett Mills, Albemarle, N. C.

C. E. Clark has been appointed superintendent of the Riverside Division of Riverside & Dan River Cotton Mills, Danville, Va.

R. V. Revels has resigned as superintendent of Aragon Mills, Rock Hill, S. C., after holding this position for eight years. He has been succeeded by **J. E. Stone,** formerly of Whitmire, S. C., who has been assistant superintendent of Aragon for the last three months.

Charles H. Boyd has resigned as superintendent of the Spray (N.C.) Cotton Mills.

G. K. Byrd has been appointed overseer of No. 2 weaving at Riverside & Dan River Cotton Mills, Danville, Va.

R. H. Chase is now superintendent of Monroe (N.C.) Mills Co. succeeding **W. Y. Ball.** He also has been made superintendent of Union Mills Co., also of Monroe, succeeding **W. B. Harris.**

Ray J. Herflecker is now superintendent of Whitehall Knitting Mills, Mt. Holly, N. C.

F. S. Tolar has become superintendent of Central Falls (N.C.) Mfg. Co., and **R. F. Passal** has become office manager.

Leonard Pach has become superintendent of South Silk Mills, Spring City, Va.

J. E. Mansfield is now superintendent of Pickett Hosiery Mills, Burlington, N. C.

Bass Redd has become superintendent of the No. 3 unit of Jefferson Mills, Royston, Ga.

R. S. Scarboro has been appointed overseer of carding and spinning at the Dan River unit of Riverside & Dan River Cotton Mills, Danville, Va.

J. E. Stone, formerly night superintendent of Aragon-Baldwin Mills, Rock Hill, S. C., has been promoted to superintendent.

Fred K. Owen, formerly night overseer of spinning at Armstrong Mills, Gastonia, N. C., has become assistant to overseer of spinning, day shift, at Virginia Mills, Swepsonville, N. C.

R. H. Chase has accepted position of superintendent of Monroe (N.C.) Cotton Mills.

T. O. Wynn, formerly of Thomaston, Ga., has become overseer of carding and spinning, first shift, at Granite Falls (N.C.) Mfg. Co.

John Strater has resigned his position with Patterson Mills, Roanoke Rapids, N. C., and become overseer of spinning and winding at Perfection Mills, Weldon, N. C.

Lewis N. Peeler, formerly of Gastonia, N. C., has become assistant to the overseer of spinning at Irene Cotton Mills, Taylorsville, N. C.

Maurice McQuinn has resigned his position with A. D. Julliard & Co., Aragon, Ga., and become superintendent of Lucy Mills, Marietta, Ga.

J. C. Holt, formerly of Banning, Ga., has been transferred to the superintendency of Winton Mills, Fort Valley, Ga.

Dwight E. Cain, who retired recently as superintendent of the weaving department of Cosmos Imperial Mills Ltd., Yarmouth, N. S., completed a record of 55 years of continuous service with the firm.

J. C. Meehan has become overseer of weaving at Texas Textile Mills, McKinney, Tex.

B. W. Whorton, who has held the position of assistant superintendent of the Langdale, Ala., unit of West Point Mfg. Co., has been transferred to LaGrange, Ga., as superintendent of Dixie Cotton Mills, succeeding the late Albert Lehmann, Jr.

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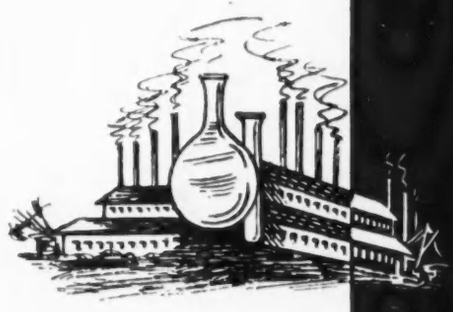
NATIONAL TECHNICAL SERVICE HAS ONE OBJECTIVE:

To help you develop a color formula that under your mill conditions and your standards of fastness will give you the exact match at lowest cost.

National Technical Service Laboratories, attached to all principal National offices, are staffed by men of long practical experience . . . are equipped to duplicate your mill conditions.



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MORE and more knitters are coming to see the value of using DOUBLE CARDED yarn in their products—and, for top quality double carded, see—

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A Tester for every need

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Obituary

Charles Worth Johnston, 81, president of the Johnston Mfg. Co., Charlotte, N. C. and connected with many other textile enterprises, died July 4. It is reported that interest in thirteen textile mills formed part of his estate. He was interested in the Highland Park Mfg. Co. and president of Anchor Mills Co., and Worth Spinning Co.

Donald B. Ward, of the sales division of Hayward-Schuster Co., New York, was killed recently in an automobile accident near Roanoke, Va. Prior to the connection just mentioned, he had been a member of the firm of Cooke & Ward, mill agents, New York.

Brooks Faxon, 67, for many years New England manager of the Wagner Electric Corp., prior to his recent retirement, died at York, Me., July 17.

Wilfred H. Lusignan, president and treasurer of Lusignan Textile Co., Worcester, Mass., died July 12.

Lucius F. Robinson, Sr., director and legal advisor of Veeder-Root, Inc., Hartford, Conn., since its organization, died recently at Hartford.

George Holland Ellis, research chemist of the Celanese interests in England and particularly known for his work in the development of Celanese dyestuffs, died recently in England.

Clinton C. Brown, 53, head of the Boston wool house of that name, died recently. He had been in the wool business since 1910.

John W. Bowers, 57, superintendent of the shipping department of Interwoven Stocking Co., Martinsburg, W. Va., and associated with that company for the last 40 years, died last month.

Gerson Heimlich, 71, one of the founders and former treasurer of the Consolidated Sewing Machine & Supply Co., New York, died recently at his home in Long Branch, N. J.

John W. Savage, 49, assistant to the president of General Electric Co., New York, and for more than 20 years closely associated with the company's distribution and commercial research problems, died July 9.

Samuel Lynch, an overseer at Contoocook Mills for many years, is dead in Milford, N. H., after a brief illness.

Rudy F. Moyer, 72, a Schuylkill Haven, Pa., underwear manufacturer for the last 16 years died June 30.

William H. Broadhead, 55, for two decades superintendent of Camden (Me.) Woolen Co. and its successor, the Camden Textile Corp., died July 5 at his home.

Edwin S. Goldsmith, 71, for many years superintendent of the H. H. Wood Co. hosiery mill, Lakeport, N. H., is dead.

Sir Robert Waddington, 72, cotton spinner, manufacturer and controller of dyestuffs since 1939, died at Clifton Hall, England, recently.

George O. Stallings, 45, for 15 years a departmental superintendent of American Yarn & Processing Co., Maiden, N. C., died July 17.

William P. Watson, 69, mayor of Phillipsburg, N. J., and at one time president of the Watson Silk Co. in that same city, died last month. He was credited with having installed the first electrically operated silk looms in the United States.

Robert C. Sears, active for many years in the Boston wool trade and some time ago head of his own firm, died in July.

William Greene Holland, 60, died at Peace Dale, R. I., on July 27. He was with the Peace Dale Mills for over 25 years, later was superintendent at Lymansville Mills, and at Sayles Mills, Pascoag; superintendent of the Montrose Mill, Guerin Mills, Inc., and later sales agent.

George E. Jordan, 86, retired president of Meredith (N. H.) Linen Mills, died on July 22 at his home in Boston, Mass. He was for many years agent of Waltham (Mass.) Bleachery & Dye Wks.

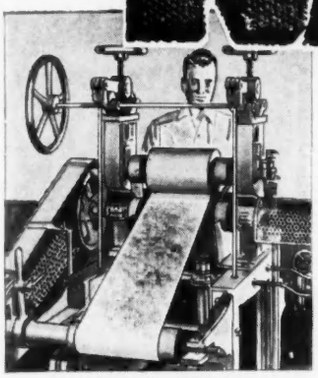
Col. Walter R. Porter, 81, who for 54 years never missed a meeting of the board of the Troy (N. H.) Blanket Mills, of which he was a director, died at Keene, N. H., on July 19.

Bernhardt H. Noelting, 89, founder and president of the Faultless Caster Co., Evansville, Ind., died June 28. He started the company in 1890. His four sons are now with the business.

H. S. Sturges, traffic manager, Manhattan Rubber Mfg. Division, Raybestos-Manhattan, Inc., Passaic, N. J., died recently.

NAPENIZE

The Positive Anti-Mildew Treatment



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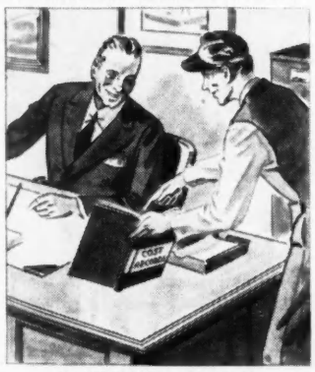
NO LOSS OF TENSILE STRENGTH



INEXPENSIVE TO BUY

CUSTOMER SATISFACTION

NAPENIZE is the name given to a new anti-mildew treatment that assures canvas products of more permanent protection than has ever been available before.

This is made possible because of the physical affinity of the chemical compound for the cloth—a desirable advantage that consequently adds far longer life to the treated product. Another advantage in NAPENIZING is that no waterproofing is required to retain the effectiveness of the treatment during exposure to the elements.

Canvas processors who NAPENIZE find it is easy to apply, low in cost and assures customer satisfaction because it provides more effective protection without loss of tensile strength. Additional information and specifications are available on request. Write to Dow today.

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TEXTILE MILL NEWS

Cotton Mill News

Alabama Textile Products Corp., Andalusia, Ala. has purchased a Diesel engine capable of furnishing power for the plant at cost of $35,000. J. G. Scharf is manager.

Amazon Cotton Mills, Thomasville, N C., has low bid from J. O'Connor & Son, High Point, N. C., for one-story addition, to be used as a cotton waste house. Cost reported about $25,000. J. N. Pease & Co., Charlotte, N. C., are engineers.

Biellese Textile Corp. is now occuping a newly erected mill of 10,000 sq. ft. at Granby, Quebec. Production of yarn dyed fabrics will commence early in September, utilizing 12 Crompton & Knowles looms and suitable winding and warping equipment. Eight more looms are to be added later.

Beaumont Mfg. Co., Spartanburg, S. C., recently purchased by Walter S. Montgomery, will be rehabilitated and reequipped to manufacture cotton duck for defense purposes.

Canadian Cottons Ltd., Hamilton, Ontario, will soon install a Brown Boveri extraction turbo-alternator unit which was imported from Switzerland. A machine of the same make is also to be installed at Stanfield's, N. S.

Candlewick Yarn Corp., Dalton, Ga., has completed construction of a new office addition.

Dominion Textile Co. is building a $75,000 cloth-room addition to its plant at Montmorency, Quebec.

Dwight Mfg. Co. reports net profit for six months ended May 31, 1941, of $430,515, compared with $254,280 for similar period one year previous.

Esmond Virginia, Inc., is the name of the new blanket mill started last month at Waynesboro, Va., in the former plant of Stehli Silk Corp. Robert Whitman is manager of the mill.

Groves Thread Co., Gastonia, N. C., has purchased a new Brownell twister for the No. 2 mill.

Hunter Mfg. & Commission Co., Greensboro, N. C., in liquidation, has received an offer of $750,000 from the Jefferson Standard Life Insurance Co. for the remainder of its assets.

Ideal Threads Ltd., has moved its plant from Montreal, Quebec, to considerably larger premises at Sherbrooke. The company is erecting a one-story addition and a boiler house to cost $15,000.

Mills Mill, Woodruff, S. C., is building a brick office building which will double its present office space.

Monroe (Ga.) **Cotton Mills** have awarded contracts for work on a three-story addition, plans for which were drawn by J. E. Sirrine & Co., Greenville, S. C. Structure will be 55 x 220 ft. with brick walls, steel sash, cast iron columns, wooden beams and flooring, and a 20-year tar and gravel roof. Cost about $67,000.

Narrow Fabrics Weaving & Dyeing Co. Ltd., Galt, Ontario, is erecting a new weave shed to house 20 additional looms. It will be a one-story brick structure 56 x 70 ft.

Patchogue-Plymouth Mills Corp., Patchogue, N. Y., has closed mill for an indefinite period following a strike and plans for liquidation of property are now being considered.

Proximity Mfg. Co., Greensboro, N. C., plans installation of water supply plant for raw water requirements at mills.

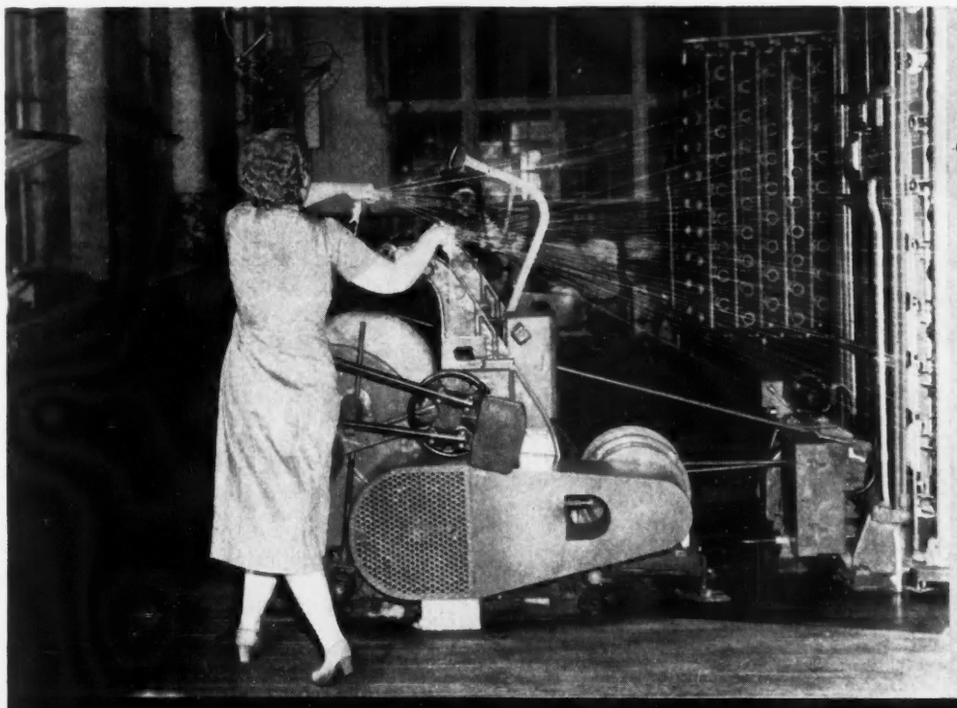
Quaker Meadows Mills, Inc., Hickory, N. C., recently organized with capital of $600,000, has awarded contract for one-story cotton mill, about 125 x 435 ft., on State Highway 70, Hildebran, near Hickory, for production of cotton yarns, twine, etc. Cost over $150,000, with equipment. New company is headed by B. B. Blackwelder, president, Shuford Mill Co., Hickory; and C. V. Cline, an official of J. A. Cline & Son, Hildebran.

Riverdale Mills, Enoree, S. C., have opened a modern recreation center, consisting of modern bowling alleys, ping-pong tables, basketball courts, skating rink, gymnasium and motion picture show and a nine-hole golf course. Fred Nash is director of athletics.

Robinson Yarn Mill, Dallas, N. C., is having the entire mill building air-conditioned. The company has completed a new brick warehouse.

Sherman (Tex.) **Mfg. Co.** is continuing expansion and improvement program (previously reported), and has installed five new Whitin long-draft frames and accessories.

Wennonah Cotton Mills Co., Lexington, N. C., has



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NOVELTY-YARNS For WEAVERS-KNITTERS

MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns

asked bids on general contract for two-story addition, 60 x 100 ft., to Mill No. 2. Cost reported over $75,000, with machinery. Company now has work under way on one-story addition to warehouse, about 50 x 100 ft.

Winton Mills, Banning, Ga., recently organized, have begun operations on a basis of about 50,000 lbs. of cotton yarn weekly, to be increased to about 90,000 lbs. H. B. Upchurch is general manager.

Wool Mill News

Alderman Top Mill, on a decree handed down in Superior Court, July 10, may purchase the building in which it is now located in Holyoke, Mass., at price of $50,000. The top mill is located in the No. 3 Farr Alpaca Building.

Alexander Wool Combing Co., 95 Bridge St., Lowell, Mass., has been chartered with capital of $25,000, to operate a local mill. Albert I. Alexander, Jr., is president and treasurer.

Amoskeag Worsted Co., Inc., Manchester, N. H., recently organized, has begun operations in one of the former buildings of Amoskeag Mills, purchasing the larger part of the structure, approximating 72,000 sq. ft. of floor space. New company will specialize in spinning worsted yarns, employing about 175 persons. David L. Punch, formerly with the Cherry Brook Worsted Co., Woonsocket, R. I., is president; and Asa P. Ashworth, vice-president.

Esmond Mills, Ltd., Granby, Quebec, has completed its extensive modernization and expansion program. The firm now has over 100 modern looms, 84 in. wide, with jacquard heads. A number of napping machines have been installed along with burling tables, etc.

Excelsior Mills, Union, S. C., now being converted for woolen goods manufacture, has let contract to Daniel Construction Co., Anderson, S. C., for one-story addition, for which plans were drawn by J. E. Sirrine & Co., Greenville, S. C. Cost over $75,000, with equipment. Contracts are being let for machinery, including award to Crompton & Knowles for 60 automatic looms; Whitin Machine Works, for 18 120-spindle ring-spinning frames, eight 60-in. cards, and 40 Schweiter winding spindles; James Hunter Machine Works, Inc., for fulling mills, washers, stock dryers, carbonizer, squeeze rolls, conditioner, etc.

J. P. Gordon Co., 232-42 Neilston St., Columbus, Ohio, has begun two-story addition, 47x160 ft., to house automobile fabric mill, estimated to cost close to $60,000.

Holyoke (Mass.) **Worsted Co.** has moved from the Sheldon building on Main Street to larger quarters in the Municipal Gas & Electric Department's division at Hadley. A section of mill has been operating in the Hadley plant for some time.

Hudson (Mass.) **Worsted Co.** has filed plans for a turbine building and pump room, a 1- and 2-story brick unit, 35 x 40 ft. The B. A. Wade Co., Fitchburg, has the general contract.

Jefferson (Mass.) **Mills** were sold at auction last month bringing $172,000 from 57 buyers.

Kinney Worsted Yarn Co., operating the plant under lease, have purchased the Russell Mill property in Pittsfield, Mass., for about $20,000.

Lawrence (Mass.) **Blanket Co.** has bought the Tiffany Woolen Mill at Webster, Mass., for reported price of $25,000.

Marshall Field & Co., Draper, N. C., is installing machinery in addition recently completed at local blanket mill, to be used as a raw stock dyeing department. Operations will begin this month. New unit will represent an investment of about $100,000.

Queensbury Combing Co., Auburn, Mass.—Fire of undetermined origin destroyed a three-story brick building containing about $200,000 worth of wool stock owned by this company June 24.

Rock River Woolen Mills, Janesville, Wis., is remodeling to provide new office space at a cost of about $16,000.

Wanskuck Mill, Providence, R. I., has let general contract to Rowley Construction Co., Pawtucket, R. I., for two two-story additions, 80 x 240 ft., and 80 x 80 ft., respectively. Cost reported over $100,000, including equipment.

Wool Combing Corp. of Canada Ltd., is installing additional equipment in order that it can produce nearly 6,000,000 lb. merino and crossbred tops annually. Six combs for crossbreds will be added.

Rayon & Silk Mill News

Clearfield (Pa.) **Mills,** organized to manufacture silk and rayon products, plan one-story mill on local site. Cost reported close to $50,000. H. J. Trichon is in charge.

Coplan Fabrics, Inc., Burlington, N. C., recently organized with capital of $200,

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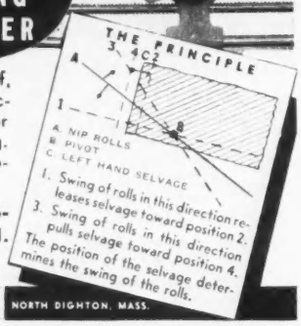
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B. PIVOT
C. LEFT HAND SELVAGE
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The position of the selvage determines the swing of the rolls.

LOW MAINTENANCE Waterproof, rustproof, purely mechanical. No electric switches or coils to burn out or short circuit. No air valves to clog. Only 2 moving parts. Reversible rubber roll.

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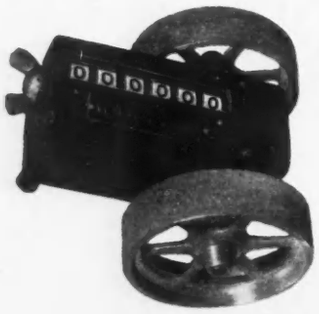

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We build single, double and triple pick counters; yardage, rotary, ratchet and special counters.

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WAK INDUSTRIES CHARLOTTE, N. C.

000, by J. R. Copland, Burlington, and associates, plans local mill for rayon fabrics to employ about 200 persons, and to be in operation before the close of the year.

Industrial Rayon Corp., Cleveland, Ohio, reports net profit for first six months as $1,533,053, compared with $1,048,358 for first six months of last year.

Interstate Weaving Co., Holyoke, Mass., recently organized (previously reported) has taken over local plant of Dunster Mills, comprising about 230 automatic looms and auxiliary equipment, and will operate on rayons. Company will be closely associated with the Majestic Weaving Co., New Bedford, Mass., and Maurice Antkies, president of the latter company, will be an official of new organization. (In previous reference, company was incorrectly stated to manufacture woolens.)

Marlyn Mills have taken over the buildings of the former Lengel Hosiery Mills, Anniston, Ala., as reported, and will manufacture rayon and mixture yarns.

Onondaga Silk Co., Easton, Pa., will sell its plant to the Easton Industrial Corp. but will continue to operate in a portion of the plant.

A. Rosenstrauch, Inc., New York, N. Y., has succeeded to the business of the Dupont (Pa.) Textile Mills, which latter concern is in liquidation.

Seaboard Silk Mills, Elberton, Ga., now owned by United Rayon Mills of New York, is now being operated as the Elberton Mills, Inc., following the installation of new equipment. Norman G. Glatfelter is local manager.

Tingue Mills, Inc., Seymour, Conn., have been incorporated with a capital of 2500 shares of common and 2500 shares of preferred stock, by Frank C. Taylor, Brooklyn, N. Y.; Kendall Williams and William A. Hamlin, both of New York, N. Y.

Tubize Chatillon Corp. reports net profit of $845,107 for first half of 1941, against $702,375 for first half of 1940.

Van Straaten & Havey, Inc., Philadelphia, Pa., have taken over mill and business of Sauquoit Silk Mfg. Co., Scranton, Pa., manufacturerer of similar silk yarn products, and will consolidate with its organization, continuing operations at Scranton mill as heretofore. It is planned to concentrate all production largely at that plant in the future and to operate as the Sauquoit Silk Co. with C. F. Havey as president and Walter Rossmassler, vice-president.

Verney Mills, Inc., Manchester, N. H., recently organized, have taken space in former Amoskeag Mill property, and will equip for the manufacture of rayon fabrics. Gilbert Verney is president, and N. Cary Hayward, vice-president.

Knitting Mill News

Athens (Ala.) **Full-Fashioned Hosiery Mill,** plans doubling the size of the plant.

Belding-Corticelli Ltd., Montreal, Que., has installed additional Reiner "Auto" heelers.

Belmont (N. C.) **Hosiery Mill** is constructing a throwing division for production of more Nylon hosiery.

Biltmore Knitting Mills is the firm name under which Lloyd Mfg. Co., Bertha L. Colton, secretary, has obtained a certificate to conduct business at 1969½ Los Angeles street, Los Angeles, Calif.

Boyertown Hosiery Co., Reading, Pa., has leased the former Calvin Rhoads building in Boyertown and is installing knitting machinery.

Brown Hosiery Mill, Hickory, N. C., now has a machinery set-up of 30 Scott & Williams H. H. knitting machines for men's half hose, some of which were recently installed.

Cheraw (S. C.) **Hosiery Co.** has been purchased by Harry A. Kelly and James O'Conner, of Mount Holly, N. C. The plant has eight 42-gauge full-fashioned knitting machines. Messrs. Kelly and O'Conner were formerly with the Whitehall Knitting Co., Mt. Holly. A new corporation, Cheraw Knitting Mills, has been chartered.

Crews (Va.) **Hosiery Mills** are being operated by Wm. F. Fahrback and James H. Carrigan as partners.

Elliott Knitting Mills, Hickory, N. C., plans to construct an addition to its Catawba unit which will double its finishing department.

Ellisville (Miss.) **Hosiery Mills** have installed two new knitting machines and plans to increase its capacity by twelve new machines.

Elmar Hosiery Mills, with M. H. Brotrian manager and superintendent, have acquired the full-fashioned machinery of the former Coosa Textile Co., Anniston, Ala., and will soon move into a new building.

Knit-To-Fit-Mfg. Co. Ltd., Montreal, Que., has installed a

HERE'S THE EVIDENCE

DU PONT
TETRA SODIUM PYROPHOSPHATE
PREVENTS SCUM FORMATION

BOTH OF THESE PANS were first filled with equal amounts of hard water and soap suds. BUT—in the left pan, 0.1% Du Pont T.S.P.P. was added. One teaspoonful of melted butter colored with a red dye was stirred into each pan . . . each mixture stirred briskly. See how the grease killed suds in the right pan . . . how it clung tenaciously to the sides in a sticky "ring" and floated on the surface as scum. Now see the benefits of Du Pont T.S.P.P. (left)—the suds are still active, the grease is thoroughly emulsified throughout the solution, and there is no scum formation!

WHEN the solutions were poured out of these pans, each pan was rinsed thoroughly with warm water. The right pan still carried a sticky "ring" . . . soap scum which did not rinse off. The pan containing Du Pont T.S.P.P. carried no scum "ring" . . . and it rinsed perfectly clean. That's why objects being washed —wash cleaner when Du Pont T.S.P.P. is used.

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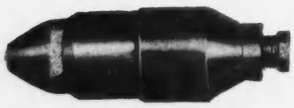

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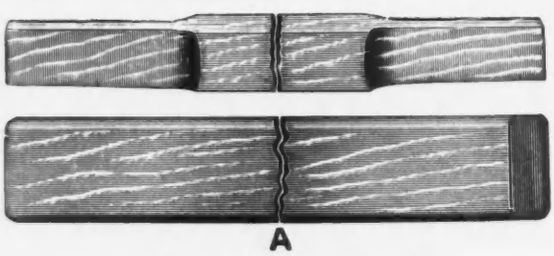

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FRANK BAILEY Cedar Brook, N. J.

H. G. LORD *comments on*

30,000 New Machines

See page 6

battery of Scott & Williams interlock knitting machines for outerwear and underwear.

Marietta Hosiery Co., Hickory, N. C., is newly established, with F. W. Clark owner and E. R. Hunt, Jr. manager.

Massachusetts Knitting Mills have moved their hosiery finishing plant from Jamaica Plain, Mass., to Manchester, N. H. Other departments remain the same.

Moorhead Knitting Co., Harrisburg, Pa., is being operated by Clarence P. Wynne, as trustee, appointed by the Federal Court under petition by Moorhead to reorganize.

Nova Scotia Textiles Ltd., Windsor, N. S., has installed 15 Merrow high-speed seamers for work on all types of underwear.

Pearl Knitting Co., Inc., and **Service Hosiery Corp.,** Milwaukee, Wis., suffered fire damage to building estimated at $25,000.

Prompt Knitting Mills, Philadelphia, Pa., have filed notice of organization to operate a mill at 1234 Carpenter St. Louis Snordick is head.

Rennie Industries Ltd., Toronto, Ont., producers of full-fashioned hosiery, have acquired a knitting mill on Simcoe St., Toronto, for men's and women's knitted outwear.

Trianon Hall, Inc., Tappahannock, Va., lately organized, has taken over a local one-story building under lease and will operate a mill on Nylon and silk hose. About 24 knitting machines will be used for initial operations.

Waldensian Hosiery Mills, Inc., Valdese, N. C., have awarded contract to J. M. Brinkley & Co., Valdese, for two-story addition, 60 x 65 ft., to Pineburr Mill unit, for expansion in knitting department. Cost over $50,000, with equipment.

Yount Hosiery Mills, Newton, N. C., has installed 12 Scott & Williams B-5 machines. Also 8 loopers, one sewing machine, one clipper, one dye machine and 24 boards have been added to the company's equipment.

Processing Plant News

American Finishing Co., Memphis, Tenn., plans early construction of a one-story addition; cost close to $45,000; E. L. Harrison, Memphis, is architect.

William H. Burns Co. and **The C. Lever Co.,** Philadelphia, have bought the former plant of John Hamilton & Sons, Howard, Hope and Huntingdon streets, and will use for the dyeing and finishing of yarns.

Catawba Valley Finishing Co., Conover, N. C., a newly established mill, is engaged in dyeing and finishing half-hose.

Menzies Co., Hickory, N. C., Sterling Menzies proprietor, is the name of the company formerly known as the Henderson-Menzies Co. The company is now installing equipment for dyeing half-hose and anklets.

Nan-El Finishing Co., Inc., Pawtucket, R. I., recently organized with capital of $10,000, plans operation of local textile dyeing and finishing mill. John A. O'Neill, Pawtucket, is head.

National Dyeing and Finishing Corp., Los Angeles, Calif., are opening their new plant there. The building covers approximately 16,000 sq. ft., equipped with modern equipment purchased from Van Vlaanderen Machine Co. The officers are: R. B. Coleman, president; Edwin J. Kraft, vice-president; Earle E. Parkhurst, treasurer; Hugo Baldecchi, secretary; Albert Slater, plant superintendent. The plant is expected to be in operation about Aug. 10.

Naumkeag Steam Cotton Co., Salem, Mass., is making extensive alterations to the Danvers Bleachery branch at Peabody. Lockwood Greene Engineers, Inc., Boston, are the engineers.

Philadelphia (Pa.) Textile Finishers, Inc., 4041 Ridge Ave., has arranged for lease of additional space in Building No. 18, Dobson Mills, Falls of Schuylkill, about 2500 sq. ft.

Piedmont Processing Co., Belmont, N. C., has awarded contract to W. H. Hand & Son, Belmont, for one-story addition, for expansion, with part of space for warehouse. Cost over $50,000, with equipment.

Precision Finishing Machine Corp., Lynchburg, Va., lately organized, has leased building of former Kanawaha Country Club, Boonsboro Rd., and will remodel and equip for new mill for fabric printing by silk screen process.

Sayles-Biltmore Bleacheries, Inc., Biltmore, N. C., have been making extensions in boiler house at mill, with installation of new boiler unit, furnished by Foster-Wheeler Corp., New York, N. Y., to operate on a basis of 80,000 lbs. of steam per hour; a new multiple retort stoker, purchased from American Engineering Co., Philadelphia, Pa., and auxiliary equipment. This is part of a general expansion program now being carried out at plant, representing an investment of about $500,000. J. E. Sirrine & Co., Greenville, S. C., are consulting engineers.